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## **Foreword**

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

The present document is part 3 of a multi-part Technical Specification (TS) covering the New Radio (NR) User Equipment (UE) conformance specification, which is divided in the following parts:

- TS 38.521-1 [8]: "NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 Standalone" (the present document).
- TS 38.521-2 [9]: "NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Range 2 Standalone".
- TS 38.521-3: "NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios".
- TS 38.521-4 [22]: "NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 4: Performance".
- TS 38.522 [14]: "NR; User Equipment (UE) conformance specification; Applicability of RF and RRM test cases".
- TS 38.533 [23]: "NR; User Equipment (UE) conformance specification; Radio resource management (RRM)".

## 1 Scope

The present document specifies the measurement procedures for the conformance test of the user equipment (UE) that contain RF characteristics for carrier aggregation between Range 1 and Range 2 and additional requirements for ENDC, NE-DC and NGEN-DC.

The requirements are listed in different clauses only if the corresponding parameters deviate. More generally, tests are only applicable to those mobiles that are intended to support the appropriate functionality. To indicate the circumstances in which tests apply, this is noted in the "definition and applicability" part of the test.

For example only Release 15 and later UE declared to support 5G-NR shall be tested for this functionality. In the event that for some tests different conditions apply for different releases, this is indicated within the text of the test itself.

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

Keiease as tr	ne present document.
[1]	3GPP TR 21.905: "Vocabulary for 3GPP Specifications"
[2]	3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".
[3]	3GPP TS 38.101-2: "NR; User Equipment (UE) radio transmission and reception; Part 2: Range 2 Standalone".
[4]	3GPP TS 38.101-3: "NR; User Equipment (UE) radio transmission and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios".
[5]	3GPP TS 36.101: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception".
[6]	3GPP TS 38.508-1: "5GS; User Equipment (UE) conformance specification; Part 1: Common test environment".
[7]	3GPP TR 38.905: "NR; Derivation of test points for radio transmission and reception conformance test cases".
[8]	3GPP TS 38.521-1:" User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 Standalone.
[9]	3GPP TS 38.521-2:"NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Range 2 Standalone".
[10]	3GPP TS 36.521-1:"Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Conformance testing"
[11]	3GPP TS 36.508:"Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); Common test environments for User Equipment (UE) conformance testing".
[12]	3GPP TS 36.133:"Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements for

3GPP TS 36.211: "E-UTRA; Physical channels and modulation".

support of radio resource management".

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[14]	3GPP TS 38.522: "NR; User Equipment (UE) conformance specification; Applicability of radio transmission, radio reception and radio resource management test cases".
[15]	Void.
[16]	3GPP TS 38.306: "NR: User Equipment (UE) radio access capabilities".
[17]	3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".
[18]	3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".
[19]	3GPP TS 38.213: "NR; Physical layer procedures for control".
[20]	3GPP TS 36.213: "E-UTRA Physical layer procedures".
[21]	Recommendation ITU-R M.1545: "Measurement uncertainty as it applies to test limits for the terrestrial component of International Mobile Telecommunications-2000".
[22]	3GPP TS 38.521-4: "NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 4: Performance".
[23]	3GPP TS 38.533: "NR; User Equipment (UE) conformance specification; Radio resource management (RRM)".
[24]	3GPP TS 36.214: "E-UTRA; Physical layer; Measurements".
[25]	3GPP TS 38.133: "NR; Requirements for support of radio resource management".

## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

**Con-current operation**: The simultaneous transmission and reception of sidelink and Uu interfaces while operation is agnostic of the service used on each interface.

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

 $\Delta R_{\rm IB,c}$  Allowed reference sensitivity relaxation due to support for CA or DC operation, for serving cell c Allowed maximum configured output power relaxation due to support for CA or DC operation, for

serving cell c

 $BW_{E\text{-}UTRA\_Channel} \ \ Channel \ bandwidth \ of \ E\text{-}UTRA \ carrier$ 

 $BW_{E\text{-}UTRA\_Channel\_CA} \quad Channel \ bandwidth \ of \ E\text{-}UTRA \ sub\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ CA \ E\text{-}block \ which \ is \ composed \ of \ intra\text{-}band \ contiguous \ can \ contiguous \ can \ contiguous \ can \ can$ 

**UTRA** carriers

 $BW_{NR\_Channel}$  Channel bandwidth of NR carrier

BW<sub>NR Channel CA</sub> Channel bandwidth of NR sub-block which is composed of intra-band contiguous CA NR carriers

Ceil(x) Rounding upwards; ceil(x) is the smallest integer such that  $ceil(x) \ge x$ 

EN-DC<sub>ACLR</sub> The ratio of the filtered mean power centred on the aggregated sub-block bandwidth ENBW to the

filtered mean power centred on an adjacent bandwidth of the same size ENBW

E-UTRA<sub>ACLR</sub> E-UTRA ACLR

F<sub>C</sub> RF reference frequency for the carrier centre on the channel raster

 $F_{DL\_low}$  The lowest frequency of the downlink *operating band*  $F_{DL\_high}$  The highest frequency of the downlink *operating band* 

F<sub>Interferer</sub> Frequency of the interferer

F<sub>Interferer</sub> (offset) Frequency offset of the interferer (between the center frequency of the interferer and the carrier

frequency of the carrier measured)

 $F_{UL\_low}$  The lowest frequency of the uplink *operating band*  $F_{UL\_high}$  The highest frequency of the uplink *operating band* 

F<sub>OOB</sub> The boundary between the NR out of band emission and spurious emission domains

L<sub>CRB</sub> Transmission bandwidth which represents the length of a contiguous resource block allocation

expressed in units of resources blocks

Max() The largest of given numbers
Min() The smallest of given numbers

NR<sub>ACLR</sub> NR ACLR

N<sub>RB</sub> Transmission bandwidth configuration, expressed in units of resource blocks

 $N_{RB\_agg}$  The number of the aggregated RBs within the fully allocated aggregated channel bandwidth

 $N_{RB_{-agg}} = \sum_{1}^{j} N_{RB_{j}} * 2^{\mu_{j}}$  for carrier 1 to j, where  $\mu$  is defined in TS 38.211 [13]

 $N_{RB,c}$  The transmission bandwidth configuration of component carrier c, expressed in units of resource

blocks

 $N_{RB,cj} = N_{RBj} * 2^{\mu j}$  for carrier j, where  $\mu$  is defined in TS 38.211 [13]

P<sub>CMAX</sub> The configured maximum UE output power

P<sub>EMAX</sub> Maximum allowed UE output power signalled by higher layers

 $\begin{array}{ll} P_{Interferer} & Modulated \ mean \ power \ of \ the \ interferer \\ P_{PowerClass} & The \ nominal \ UE \ power \ (i.e. \ no \ tolerance) \end{array}$ 

P<sub>UMAX</sub> The measured configured maximum UE output power

 $\begin{array}{ll} P_{uw} & Power \ of \ an \ unwanted \ DL \ signal \\ P_{w} & Power \ of \ a \ wanted \ DL \ signal \end{array}$ 

RB<sub>start</sub> Indicates the lowest RB index of transmitted resource blocks

 $W_{\text{gap}}$  The sub-block gap between the two sub-blocks

### 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

ACLR Adjacent Channel Leakage Ratio
ACS Adjacent Channel Selectivity

A-MPR Additional Maximum Power Reduction

BCS Bandwidth Combination Set BPSK Binary Phase Shift Keying

BW Bandwidth

CA Carrier Aggregation
CC Component Carrier
CG Carrier Group
CP-OFDM Cyclic Prefix-OFDM
CQI Channel quality indicator
CW Continuous Wave
DC Dual Connectivity

DCI Downlink Control Information

DFT-s-OFDM Discrete Fourier Transform-spread-OFDM

DL Downlink

DTX Discontinuous Transmission

EIRP Equivalent Isotropically Radiated Power

EIS Effective Isotropic Sensitivity

EN-DC E-UTRA/NR DC E-UTRA Evolved UTRA

EVM Error Vector Magnitude

FDM Frequency Division Multiplexing FFT Fast Fourier Transformation

FR Frequency Range

ENBW The aggregated bandwidth of an E-UTRA sub-block and an adjacent NR sub-block

HARQ Hybrid automatic repeat request

IDFT Inverse Discrete Fourier Transformation

ITS Intelligent Transportation System

ITU-R Radio communication Sector of the International Telecommunication Union

MBW Measurement bandwidth defined for the protected band

MCG Master Cell Group

MPR Allowed maximum power reduction
MSD Maximum Sensitivity Degradation

MU Measurement Uncertainty
MR-DC Multi-Radio Dual Connectivity
NE-DC NR-E-UTRA Dual Connectivity

NGEN-DC NG-RAN E-UTRA-NR Dual Connectivity

NR New Radio

NR-ARFCN NR Absolute Radio Frequency Channel Number

NR/5GC NR connected to 5GC NS Network Signalling

NSA Non-Standalone, a mode of operation where operation of a radio is assisted with another radio

OCNG OFDMA Channel Noise Generator OFDM Orthogonal frequency division multiplex

OOB Out-of-band

OOBE Out-of-band emission

OTA Over The Air

PBCH Physical broadcast channel
PDCCH Physical downlink control channel
PDSCH Physical downlink shared channel

P-MPR Power Management Maximum Power Reduction

PRACH Physical random-access channel PRB Physical Resource Block

PSCCH Physical Sidelink Control CHannel
PSSCH Physical Sidelink Shared CHannel
PUCCH Physical uplink control channel
PUSCH Physical uplink shared channel
QAM Quadrature Amplitude Modulation
QPSK Quadrature Phase Shift Keying

RE Resource Element
REFSENS Reference Sensitivity
RF Radio Frequency

RMC Reference Measurement Channel
RNTI Radio Network Temporary Identifier

Rx Receiver

SCG Secondary Cell Group SCS Subcarrier spacing SEM Spectrum Emission Mask

SL Sidelink

SRS Sounding Reference Symbol

SS Synchronization Symbol / System Simulator

SUL Supplementary uplink
TDM Time Division Multiplex
TPC Transmit Power Control
TRP Total Radiated Power
TT Test Tolerance

TT Test Tolerance
Tx Transmitter
UE User Equipment

UL Uplink

UL MIMO Up Link Multiple Antenna transmission ULSUP Uplink sharing from UE perspective

V2X Vehicle to Everything

## 4 General

## 4.1 Relationship between minimum requirements and test requirements

TS 38.101-3 [4] is interwork specification for NR UE, covering RF characteristics and minimum performance requirements. Conformance to TS 38.101-3 [4] is demonstrated by fulfilling the test requirements specified in the present document.

The Minimum Requirements given in TS 38.101-3 [4] make no allowance for measurement uncertainty (MU). The present document defines test tolerances (TT). These test tolerances are individually calculated for each test. The test tolerances are used to relax the minimum requirements in TS 38.101-3 [4] to create test requirements. For some requirements, including regulatory requirements, the test tolerance is set to zero.

The measurement results returned by the test system are compared - without any modification - against the test requirements as defined by various levels of "Shared Risk" principle as described below.

- a) Core specification value is not relaxed by any relaxation value (TT=0). For each single measurement, the probability of a borderline good UE being judged as FAIL equals the probability of a borderline bad UE being judged as PASS.
  - Test tolerances equal to 0 (TT=0) are considered in this specification.
- b) Core specification value is relaxed by a relaxation value (TT>0). For each single measurement, the probability of a borderline bad UE being judged as PASS is greater than the probability of a borderline good UE being judged as FAIL.
  - Test tolerances lower than measurement uncertainty and greater than 0 (0 < TT < MU) are considered in this specification.
  - Test tolerances high up to measurement uncertainty (TT = MU) are considered in this specification which is also known as "Never fail a good DUT" principle.
- c) Core specification value is tightened by a stringent value (TT<0). For each single measurement, the probability of a borderline good UE being judged as FAIL is greater than the probability of a borderline bad UE being judged as PASS.</p>
  - Test tolerances lower than 0 (TT<0) are not considered in this specification.

The "Never fail a good DUT" and the "Shared Risk" principles are defined in Recommendation ITU-R M.1545 [21].

## 4.2 Applicability of minimum requirements

- a) In TS 38.101-3 [4] the Minimum Requirements are specified as general requirements and additional requirements. Where the Requirement is specified as a general requirement, the requirement is mandated to be met in all scenarios
- b) For specific scenarios for which an additional requirement is specified, in addition to meeting the general requirement, the UE is mandated to meet the additional requirements.
- c) The spurious emissions power requirements are for the long-term average of the power. For the purpose of reducing measurement uncertainty, it is acceptable to average the measured power over a period of time sufficient to reduce the uncertainty due to the statistical nature of the signal.
- d) Terminal that supports EN-DC configuration shall meet E-UTRA requirements as specified in TS 36.101 [5] and NR requirements as in TS 38.101-1 [2] and TS 38.101-2 [3] unless otherwise specified in TS 38.101-3 [4].
- e) All the requirements for intra-band contiguous and non-contiguous EN-DC or NE-DC apply under the assumption of the same uplink-downlink and special subframe configurations in the E-UTRA and slot format indicated by UL-DL-configurationCommon and UL-DL-configurationDedicated in the NR for the EN-DC or NE-DC.

f) For EN-DC or NE-DC combinations with CA configurations for E-UTRA and/or NR, all the requirements for E-UTRA and/or NR all the requirements for E-UTRA and/or NR intra-band contiguous and non-contiguous CA apply under the assumption of the same slot format indicated by UL-DL-configurationCommon and UL-DL-configurationDedicated in the PSCell and SCells for NR and the same uplink-downlink and special subframe configurations in PCell and SCells for E-UTRA.

A terminal which supports an EN-DC or NE-DC configuration shall support:

- If any subsets of the EN-DC or NE-DC configuration do not specify its own bandwidth combination sets in 5.3B, then the terminal shall support the same E-UTRA bandwidth combination sets it signals the support for in E-UTRA CA configuration part of E-UTRA NR DC and shall support the same NR bandwidth combination sets it signals the support for in NR CA configuration part of E-UTRA NR DC.
- Else if one of the subsets of the EN-DC or NE-DC configuration specify its own bandwidth combination sets in 5.3B, then the terminal shall support a product set of channel bandwidth for each band specified by E-UTRA bandwidth combination sets, NR bandwidth combination sets, and EN-DC or NE-DC bandwidth combination sets it signals the support.

A terminal which supports an inter-band EN-DC or NE-DC configuration with a certain UL configuration shall support the all lower order DL configurations of the lower order EN-DC or NE-DC combinations, which have this certain UL configuration and the fallbacks of this UL configuration.

A terminal which supports NE-DC configurations shall meet the minimum requirements for corresponding EN-DC configuration, unless otherwise specified.

For CA or DC configurations, which include FR2 intra-band CA combinations with multiple FR2 subblocks, where at least one of the subblocks is contiguous CA combination.

- if the field *partialFR2-FallbackRX-Req* is not present, the UE shall meet all applicable UE RF requirements for the highest order CA configuration and all associated fallback CA configurations;
- if the field *partialFR2-FallbackRX-Req* is present, for each FR2 intra-band CA configuration with multiple subblocks that the UE indicates support for explicitly in UE capability signalling: the in-gap UE RF requirements in clauses 7.5A, 7.5B, 7.6A, 7.6B apply as the equivalent requirements for the associated fallback FR2 intra-band CA configurations with the same number of sub-blocks, where at least one of the sub-blocks consists of a contiguous CA configuration. The UE shall meet all applicable UE RF requirements for fallback CA configurations with a lesser number of sub-blocks;
- regardless of the field *partialFR2-FallbackRX-Req*, the UE shall meet all DL out-of-gap requirements for all lower order fallback CA configurations.

Terminal that supports inter-band NR-DC between FR1 and FR2 configuration shall meet the requirements for corresponding CA configuration (suffix A), unless otherwise specified.

## 4.3 Specification suffix information

Unless stated otherwise the following suffixes are used for indicating at 2<sup>nd</sup> level clause, shown in Table 4.3-1.

Table 4.3-1: Definition of suffixes

Clause suffix	Variant
None	Single Carrier
А	Carrier Aggregation (CA) between FR1 and FR2
В	Dual-Connectivity (DC) with and without SUL including UL sharing from UE perspective, inter-band NR DC between FR1 and FR2
D	UL MIMO
Ē	V2X
F	Shared spectrum channel
D E F	DC between FR1 and FR2 UL MIMO V2X

## 4.4 Test points analysis

The information on test point analysis and test point selection including number of test points for each test case is shown in TR 38.905 [7] clause 4.3.

## 4.5 Applicability and test coverage rules

### 4.5.0 General

- (1) The applicability and test coverage rules for Non-Standalone (NSA) only capable devices shall include the following:
  - a) For each NR band in a device; test all the EN-DC or NE-DC exception test requirements as per test procedures in this specification.
  - b) Test all the EN-DC or NE-DC FR2 non-exception test requirements in this specification with test procedures which refer appropriately back to TS 38.521-2 [9] for each NR band. Test only one EN-DC or NE-DC combination per FR2 band for each EN-DC or NE-DC configuration as defined in clause 5.5B of TS 38.101-3 [4] using LTE anchor agnostic approach.
  - c) Test all the EN-DC or NE-DC FR1 non-exception test requirements in this specification with test procedures which refer appropriately back to TS 38.521-1 [8] for each NR band. Test only one EN-DC or NE-DC combination per FR1 band for each EN-DC or NE-DC configuration as defined in clause 5.5B of 38.101-3 [4] using LTE anchor agnostic approach.
- (2) The applicability and test coverage rules for Standalone (SA) and NSA capable devices shall include the following:
  - a) For each NR band in a device, test all the EN-DC or NE-DC exception test requirements as per test procedures in this specification.
  - b) Test all the Standalone FR2 test requirements as per test procedures in TS 38.521-2 [9] for each NR band. This also fulfils coverage for all non-exception EN-DC or NE-DC FR2 test requirements for that NR band and need not be retested. If Standalone FR2 cannot be tested (due to test case not being complete), then test in EN-DC or NE-DC mode following (1)(b) above.
  - c) Test all the Standalone FR1 test requirements as per test procedures in TS 38.521-1 [8] for each NR band. This also fulfils coverage for all non-exception EN-DC or NE-DC FR1 test requirements for that NR band and need not be retested. If Standalone FR1 cannot be tested (due to test case not being complete or if the UE does not support the band in SA mode), then test in EN-DC or NE-DC mode following (1)(c) above.

## 4.5.1 Test coverage across 5G NR connectivity options

The test cases in this specification cover both NR/5GC (including FR1+FR2 CA or FR1+FR2 NR-DC) as well as EN-DC, NE-DC and NGEN-DC testing. Below shall be the understanding with respect to coverage across 5G NR connectivity options:

- 1) Unless otherwise stated within the test case, it shall be understood that test requirements are agnostic of the EN-DC, NE-DC and NGEN-DC connectivity options configured within the test. The test coverage across the EN-DC, NE-DC and NGEN-DC connectivity options shall be considered fulfilled by executing the test case in one of these connectivity options. In the case of non-exception requirements, test coverage of NE-DC is fulfilled by execution of NR/5GC connectivity option test cases.
- 2) EN-DC is the default connectivity option used for EN-DC, NE-DC and NGEN-DC test cases.
- 3) If a UE does not support EN-DC, any other supported connectivity option of NE-DC or NGEN-DC can be configured to execute the test. The leverage rule detailed in (1) would apply.

**Table 4.5.1-1: Void** 

Table 4.5.1-2: Void

## 4.6 E-UTRA configuration for EN-DC FR1 tests applying the E-UTRA anchor-agnostic approach

This clause applies to EN-DC test cases where E-UTRA anchor needs to be configured as per the anchor-agnostic approach outlined in clauses 6.1 and 7.1 of TS 38.101-3 [4]. The LTE anchor-agnostic approach is defined as measurements on the NR carrier under conditions where the LTE anchor resources do not interfere with NR operation. The configuration defined in this clause ensures establishment of such conditions.

For baseline configuration, the E-UTRA carrier will be configured for each test case in clauses 6 and 7 as defined in the equivalent standalone E-UTRA test in TS 36.521-1 [10]. However, the below exceptions defined in Table 4.6-1, 4.6-2, 4.6-3, 4.6-4 and 4.6-5 are applied to ensure that the E-UTRA anchor resources do not interfere with NR operation.

For EN-DC within FR1 band combinations with multiple E-UTRA component carriers, it is sufficient to configure any one E-UTRA carrier from the carrier group whenever it is determined that anchor agnostic approach can be applied. Unless otherwise stated, the number of component carriers (CCs) listed in the test case titles of Clause 6 and clause 7 shall refer to the number of component carriers configured within the test case.

Table 4.6-1: E-UTRA configuration for EN-DC FR1 tests applying anchor agnostic approach

Parameter	Value	Comments
Test Frequency during and after connection setup	Mid (See Table 4.6-2)	As defined in TS 36.508 for the LTE band under test
Bandwidth during and after connection setup	5 MHz (See Table 4.6- 2)	Supported by all LTE bands.
DL signal levels during connection setup	RS EPRE -85.0 dBm/15kHz	DL physical channels as defined in Annex C0, C.1, C.2 and Annex C.3 of TS 36.521-1 [10]. TS 36.521-1 [10] annex C.0 defines the default DL power level of RS EPRE to be -85dBm/15kHz.
UL Signal levels during connection setup	PUSCH Power	Attained by enabling open loop power control and setting up UL signal levels according to Annex H.0, H.2 and H.3 of TS 36.521-1 [10].
DL/UL RMC after connection setup	0 RB allocation on both DL and UL (see Table 4.6-2)	Once the LTE link is established, then LTE Tx can be restricted by configuring 0 RB allocation on DL and UL.  TimeAlignmentTimerDedicated IE to be set to infinity to ensure UE doesn't look for TA adjustments (See Table 4.6-5)
CQI Reports and SRS after connection setup	Disabled (See Table 4.6-3 and 4.6-4)	Disable periodic and aperiodic CQI reports to ensure none of these transmissions occur on the LTE uplink.  Since LTE transmissions could easily exceed spurious emissions limits, tests that are intended to measure RF parameters on the NR should simply avoid LTE transmit altogether.
Number of OFDM symbols for PDCCH	3	The PCFICH carries information about the number of OFDM symbols used for transmission of PDCCHs in a subframe, as specified in TS 36.211 [8] clause 6.7

Table 4.6-2: E-UTRA Test Configuration Table

E-UTRA Test Parameters					
E-UTRA Channel	E-UTRA Test	Dow	nlink	Up	link
Bandwidth	Frequency	Modulation	RB allocation	Modulation	RB
					allocation

5 MHz <sup>2</sup>	MidRange <sup>1</sup>	N/A	0	N/A	0
NOTE 1: E-UTRA Test Frequency as specified in TS 36.508 [11] clause 4.3.1.					
NOTE 2: For EN-DC Intra-band tests that need to apply E-UTRA anchor agnostic approach, refer to and					
pick applicable E-UTRA channel bandwidth from clause 5.3B.1 and indicate within test case if it					
is different than 5 MHz					

#### Table 4.6-3: CQI-ReportConfig-DEFAULT: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-2 CQI-ReportConfig-DEFAULT			
Information Element	Value/remark	Comment	Condition
CQI-ReportConfig-DEFAULT ::= SEQUENCE {			
cqi-ReportModeAperiodic	NOT PRESENT		
cqi-ReportPeriodic	NOT PRESENT		
}			

#### Table 4.6-4: PhysicalConfigDedicated-DEFAULT: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.8.2, Table 4.8.2.1.6-1 PhysicalConfigDedicated-DEFAULT			
Information Element	Value/remark	Comment	Condition
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {			
soundingRS-UL-ConfigDedicated	Not present		RBC
}			

Table 4.6-5: MAC-MainConfig-RBC: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.8.2.1.5, Table 4.8.2.1.5-1 MAC-MainConfig-RBC				
Information Element	Value/remark	Comment	Condition	
timeAlignmentTimerDedicated	Infinity			

## 4.7 E-UTRA configuration for EN-DC FR2 tests applying the E-UTRA anchor-agnostic approach

This clause applies to EN-DC test cases where E-UTRA anchor needs to be configured as per the anchor-agnostic approach outlined in clauses 6.1 and 7.1 of TS 38.101-3 [4]. The LTE anchor-agnostic approach is defined as measurements on the NR carrier under conditions where the LTE anchor resources do not interfere with NR operation. The configuration defined in this clause ensures establishment of such conditions.

For baseline configuration, the E-UTRA carrier will be configured for each test case in clauses 6 and 7 as defined in the equivalent standalone E-UTRA test in TS 36.521-1 [10]. However, the below exceptions defined in Table 4.7-1 to 4.7-7 are applied to ensure that the E-UTRA anchor resources do not interfere with NR operation.

Since the E-UTRA link is always a functional link when testing EN-DC including FR2 band combinations, it is sufficient to configure any one E-UTRA carrier from the carrier group, irrespective of the number of E-UTRA carriers in the EN-DC combination under test. Unless otherwise stated, the number of component carriers (CCs) listed in the test case titles of Clause 6 and clause 7 shall refer to the number of component carriers configured within the test case.

Table 4.7-1: E-UTRA configuration for EN-DC FR2 tests applying anchor agnostic approach

Parameter	Value	Comments
Test Frequency during and after connection setup	Mid (See Table 4.7-2)	As defined in TS 36.508 for the LTE band under test
Bandwidth during and after connection setup	5 MHz (See Table 4.7- 2)	Supported by all LTE bands.
DL signal levels	See table 4.7-3	DL physical channels as defined in Annex C0, C.1, C.2 and Annex C.3 of TS 36.521-1 [10].
UL Signal levels for connection setup and UBF transmission	PUSCH Power	Attained by enabling open loop power control and setting up UL signal levels according to Annex H.0, H.2 and H.3 of TS 36.521-1 [10] with the exception for power control message exception defined in Table 4.7-5
DL/UL RMC after connection setup except for UBF transmission	0 RB allocation on both DL and UL (see Table 4.7-2)	Once the LTE link is established, then LTE Tx can be restricted by configuring 0 RB allocation on DL and UL.  TimeAlignmentTimerDedicated IE to be set to infinity to ensure UE doesn't look for TA adjustments (See Table 4.7-7)
CQI Reports and SRS after connection setup	Disabled (See Table 4.7-4 and 4.7-6)	Disable periodic and aperiodic CQI reports to ensure none of these transmissions occur on the LTE uplink.  Since LTE transmissions could easily exceed spurious emissions limits, tests that are intended to measure RF parametrics on the NR should simply avoid LTE transmit altogether.
Number of OFDM symbols for PDCCH	3	The PCFICH carries information about the number of OFDM symbols used for transmission of PDCCHs in a subframe, as specified in TS 36.211 [8] clause 6.7

**Table 4.7-2: E-UTRA Test Configuration Table** 

E-UTRA Test Parameters					
E-UTRA Channel E-UTRA Test Downlink Uplink					link
Bandwidth	Frequency	Modulation	RB allocation	Modulation	RB allocation
5 MHz <sup>2</sup>	MidRange <sup>1</sup>	N/A	0	N/A	0

NOTE 1: E-UTRA Test Frequency as specified in TS 36.508 [11] clause 4.3.1

NOTE 2: For EN-DC Intra-band tests that need to apply E-UTRA anchor agnostic approach, refer to and pick applicable E-UTRA channel bandwidth from clause 5.3B.1 and indicate within test case if it is different than 5 MHz.

Table 4.7-3: Default Downlink power levels for E-UTRA anchor

	Unit	Band Group	Channel Bandwidth					
			1.4 MHz	3 MHz	5MHz	10MHz	15 MHz	20 MHz
RS EPRE	dBm/15kHz	FDD_A, TDD_A	N/A	N/A	≥ -120.0	N/A	N/A	N/A
		FDD_B1, TDD_B1	N/A	N/A	≥ -119.5	N/A	N/A	N/A
		FDD_C, TDD_C	N/A	N/A	≥ -119.0	N/A	N/A	N/A
		FDD_D, TDD_D	N/A	N/A	≥ -118.5	N/A	N/A	N/A
		FDD_E, TDD_E	N/A	N/A	≥ -118.0	N/A	N/A	N/A
		FDD_G, TDD_G	N/A	N/A	≥ -117.0	N/A	N/A	N/A
		FDD_H, TDD_H	N/A	N/A	≥ -116.5	N/A	N/A	N/A
		FDD_N, TDD_N	N/A	N/A	≥ -113.5	N/A	N/A	N/A

NOTE 1: The power level is specified at RSRP reference point as defined in TS 36.214 [24] NOTE 2: E-UTRA Band groups are defined in TS 36.133 [12] clause 3.5.1.

Table 4.7-4: CQI-ReportConfig-DEFAULT: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-2 CQI-ReportConfig-DEFAULT				
Information Element	Value/remark	Comment	Condition	
CQI-ReportConfig-DEFAULT ::= SEQUENCE {				
cqi-ReportModeAperiodic	NOT PRESENT			
cqi-ReportPeriodic	NOT PRESENT			
}				

#### Table 4.7-5: UplinkPowerControlCommon-DEFAULT : Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.6.3, UplinkPowerControlCommon-DEFAULT				
Information Element	Value/remark	Comment	Condition	
UplinkPowerControlCommon-DEFAULT ::= SEQUENCE {				
p0-NominalPUSCH	-60 (-60 dBm)	To attain maximum power from the DUT		
}				

Table 4.7-6: PhysicalConfigDedicated-DEFAULT: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.8.2, Table 4.8.2.1.6-1 PhysicalConfigDedicated-DEFAULT					
Information Element	Value/remark	Comment	Condition		
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {					
soundingRS-UL-ConfigDedicated	Not present		RBC		
}					

Table 4.7-7: MAC-MainConfig-RBC: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.8.2.1.5, Table 4.8.2.1.5-1 MAC-MainConfig-RBC				
Information Element	Value/remark	Comment	Condition	
timeAlignmentTimerDedicated	Infinity			

## 4.8 E-UTRA configuration for EN-DC FR1 tests not applying the E-UTRA anchor-agnostic approach

Unless otherwise stated, the following message exception defined in tables 4.8-1, 4.8-2 and 4.8-3 apply for EN-DC FR1 tests not applying the E-UTRA anchor-agnostic approach.

Table 4.8-1: CQI-ReportConfig-DEFAULT: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.6.3, Table 4.6.3-2 CQI-ReportConfig-DEFAULT					
Information Element	Value/remark	Comment	Condition		
CQI-ReportConfig-DEFAULT ::= SEQUENCE {					
cqi-ReportModeAperiodic	NOT PRESENT				
cqi-ReportPeriodic	NOT PRESENT				
}					

Table 4.8-2: PhysicalConfigDedicated-DEFAULT: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.8.2, Table 4.8.2.1.6-1 PhysicalConfigDedicated-DEFAULT					
Information Element	Value/remark	Comment	Condition		
PhysicalConfigDedicated-DEFAULT ::= SEQUENCE {					
soundingRS-UL-ConfigDedicated	Not present		RBC		
}					

Table 4.8-3: MAC-MainConfig-RBC: Additional E-UTRA Anchor Configuration

Derivation Path: TS 36.508 [7] clause 4.8.2.1.5, Table 4.8.2.1.5-1 MAC-MainConfig-RBC				
Information Element Value/remark Comment Condition				
timeAlignmentTimerDedicated	Infinity			

## 5 Operating bands and channel arrangement

## 5.1 General

The channel arrangements presented in this clause are based on the operating bands and channel bandwidths defined in the present release of specifications.

NOTE: Other operating bands and channel bandwidths may be considered in future releases.

Requirements throughout the RF specifications are in many cases defined separately for different frequency ranges (FR). The frequency ranges in which NR can operate according to this version of the specifications are identified as described in Table 5.1-1.

Table 5.1-1: Definition of frequency ranges

Frequency range designation	Corresponding frequency range
FR1	410 MHz – 7125 MHz
FR2	24250 MHz – 52600 MHz

The present specification covers band combinations including

- at least one FR1 operating band and one FR2 operating band for carrier aggregation and dual connectivity operations;
- at least one E-UTRA operating band for dual connectivity operations.

## 5.2 Operating bands

NR is designed to operate in FR1 operating bands defined in TS 38.101-1 [2] and FR2 operating bands defined in TS 38.101-2 [3]. E-UTRA is designed to operate in operating bands defined in TS 36.101 [4].

## 5.2A Operating bands for CA

#### 5.2A.1 Inter-band CA between FR1 and FR2

NR carrier aggregation is designed to operate in the operating bands defined in Table 5.2A.1-1. The band combinations include at least one FR1 operating band and one FR2 operating band.

If the mandatory simultaneous Rx/Tx capability applies for a lower order band combination, when the applicable lower order band combination is a band pair in a higher order band combination, the mandatory simultaneous Rx/Tx capability also applies for the band pair in the higher order band combination.

#### Table 5.2A.1-1: Band combinations for inter-band NR CA between FR1 and FR2

Editor's note: No band combinations for inter-band NR CA between FR1 and FR2 specified due to the testability issues that combined testing of NR FR1 in conducted mode and NR FR2 in radiated mode.

## 5.2B Operating bands for DC

### 5.2B.1 General

The operating bands are specified in clause 5.5B for operation with EN-DC, NGEN-DC, NE-DC or NR-DC configured.

#### 5.2B.2 to 5.2B.7 Void

## 5.2E Operating bands for V2X

#### 5.2E.1 Intra-band V2X bands

NR V2X operation is designed to operate with E-UTRA sidelink in TDM mode on the operating bands combinations listed in Table 5.2E.1-1.

Table 5.2E.1-1: Intra-band V2X operating bands

E-UTRA V2X-NR V2X Band combination	E-UTRA or NR Band	Interface		
V2X 47 n47 <sup>1</sup>	47	PC5		
V2A_47_1147	n47	PC5		
NOTE 1: Only single switched SL is supported.				

#### 5.2E.2 Inter-band V2X bands

NR V2X operation is designed to operate concurrent with E-UTRA uplink/downlink on the operating bands combinations listed in Table 5.2E.2-1.

Table 5.2E.2-1: Inter-band con-current V2X operating bands

E-UTRA-NR V2X Band Combination	E-UTRA or NR Band	Interface	
V2X 20 n38	20	Uu	
V2A_2U_1136	n38	PC5	
V2X_n71_47	47	PC5	
	n71	Uu	
	47	PC5	
V2X_n71_(n) 47 <sup>1</sup>	n47	PC5	
	n71	Uu	
NOTE 1: Only single switched SL in ITS band is supported.			

## 5.3 UE Channel bandwidth

#### 5.3A UE Channel bandwidth for CA

#### 5.3A.1 Inter-band CA between FR1 and FR2

For inter-band NR CA between FR1 and FR2, a carrier aggregation configuration is a combination of operating bands, each supporting a carrier aggregation bandwidth class as specified in clause 5.3A.5 of TS 38.101-1 [2] and clause 5.3A.4 of TS 38.101-2 [3] independently.

### 5.3B UE Channel bandwidth for EN-DC

#### 5.3B.0 General

For intra-band contiguous EN-DC, the aggregated channel bandwidth is sum of the individual NR and E-UTRA channel bandwidths assuming nominal EN-DC channel with 0 kHz offset spacing as specified in clause 5.4.

$$ENBW = BW_{NR\_Channel} + BW_{E\text{-}UTRA\_Channel}$$

In the case where the NR sub-block and/or the E-UTRA sub-block itself is composed of intra-band contiguous CA carriers, the EN-DC aggregated channel bandwidth is the sum of the aggregated channel bandwidths of the NR and E-UTRA sub-blocks assuming nominal EN-DC channel spacing between the NR sub-block and E-UTRA sub-block.

$$ENBW = BW_{NR\_Channel\_CA} + BW_{E\text{-}UTRA\_Channel\_CA}$$

For NR inter-band dual connectivity specified in 5.5B.7, the corresponding NR CA configurations in 5.5A.1, i.e., dual uplink inter-band carrier aggregation between FR1 and FR2 with uplink assigned to two NR bands, are applicable to Dual Connectivity.

NOTE: Requirements for the dual connectivity configurations are defined in the clause corresponding NR uplink CA between FR1 and FR2 configurations, unless otherwise specified.

Intra-band contiguous EN-DC configurations are defined using intra-band contiguous EN-DC bandwidth class notation DC\_(n)Xyz where the first EN-DC bandwidth class letter indicates the number of contiguous E-UTRA carriers and the second EN-DC bandwidth class letter indicates the number of contiguous NR carriers for the EN-DC combination of E-UTRA Band X and NR Band nX. Applicable contiguous intraband EN-DC bandwidth classes are listed in Table 5.3B.0-1

Intra-band contiguous EN-DC bandwidth class	Number of contiguous CC		
Dandwidth Class	E-UTRA	NR	
AA	1	1	
AB	1	2	
CA	2	1	
DΛ	2	1	

Table 5.3B.0-1: Intra-band contiguous EN-DC bandwidth classes

#### 5.3B.1 Intra-band EN-DC in FR1

#### 5.3B.1.1 General

The requirements for intra-band EN-DC in this specification are defined for EN-DC configurations with associated bandwidth combination sets.

For each EN-DC configuration, requirements are specified for all bandwidth combinations contained in a *bandwidth combination set*, which is indicated per supported band combination in the UE radio access capability. A UE can indicate support of several bandwidth combination sets per band combination.

#### 5.3B.1.2 BCS for Intra-band contiguous EN-DC

For intra-band contiguous EN-DC, an EN-DC configuration is consisting of an E-UTRA band and a corresponding NR band having the same frequency range which supports an intra-band contiguous EN-DC bandwidth class.

Bandwidth combination sets for intra-band contiguous EN-DC are specified in Table 5.3B.1.2-1. The EN-DC configurations and bandwidth combination sets in Table 5.3B.1.2-1 also apply to higher order EN-DC combinations that include inter-band and intra-band EN-DC on the downlink and inter-band EN-DC on the uplink. If no BCS is reported in the UE capabilities for an intra-band combination the default is that the UE supports BCS0.

Table 5.3B.1.2-1: EN-DC configurations and bandwidth combination sets defined for intra-band contiguous EN-DC

E-UTRA – NR configuration / Bandwidth combination set							
			arriers in order o				
Downlink	United EN DO	carrier frequency			Maximum	Bandwidth	
EN-DC configuration	Uplink EN-DC configurations	Channel bandwidths for E-UTRA carrier (MHz)	Channel bandwidths for NR carrier (MHz)	Channel bandwidths for E-UTRA carrier (MHz)	aggregated bandwidth (MHz)	combination set	
DC_(n)41AA	DC_(n)41AA	20	40, 60, 80,100		120	0	
			40, 60, 80,100	20			
		20	40, 50, 60, 80,100		120	1	
			40, 50, 60, 80,100	20			
DC_(n)41CA	DC_(n)41AA, DC_41A_n41A	20+20	40, 60, 80,100		140	0	
			40, 60, 80,100	20+20			
		20+20	40, 50, 60, 80,100		140	1	
			40, 50, 60, 80,100	20+20			
DC_(n)71AA	DC_(n)71AA	15	5		20	0	
		10	5, 10				
		5	5, 10, 15				
			5	15			
			5, 10	10			
_			5, 10, 15	5			

NOTE 1: Void NOTE 2: Void NOTE 3: Void

NOTE 4: The channel bandwidths for E-UTRA or NR carrier should be at least supported in one of the BCS indicated in E-UTRA bandwidth combination sets or NR bandwidth combination sets if reported.

#### 5.3B.1.3 BCS for Intra-band non-contiguous EN-DC

For intra-band non-contiguous EN-DC, an EN-DC configuration is consisting of an E-UTRA band and a corresponding NR band having the same frequency range which supports E-UTRA and NR carriers, where E-UTRA configuration is indicated by using E-UTRA CA bandwidth class as defined in TS 36.101 [5] and NR configuration is indicated by using NR CA bandwidth class as defined in TS 38.101-1 [2].

Requirements for intra-band non-contiguous EN-DC are defined for the EN-DC configurations and bandwidth combination sets specified in Table 5.3B.1.3-1. The EN-DC configurations and bandwidth combination sets in Table 5.3B.1.3-1 also apply to higher order EN-DC combinations that include inter-band and intra-band EN-DC on the downlink and inter-band EN-DC on the uplink. If no BCS is reported in the UE capabilities for an intra-band combination the default is that the UE supports BCS0.

Table 5.3B.1.3-1: EN-DC configurations and bandwidth combination sets defined for intra-band noncontiguous EN-DC

E-UTRA – NR configuration / Bandwidth combination set						
Downlink		C	carrier frequency	Maximum	Bandwidth	
EN-DC configuration	J	Channel	Channel	Channel	aggregated bandwidth	combination
		bandwidths	bandwidths	bandwidths		
		for E-UTRA	for NR carrier	for E-UTRA	(MHz)	Set
		carrier (MHz)	(MHz)	carrier (MHz)		

DC_41A_n41A	DC_41A_n41A	20	40, 60, 80,100		120	0
			40, 60, 80,100	20		
		20	40, 50, 60, 80,100		120	1
			40, 50, 60, 80,100	20		
DC_41C_n41A	DC_41A_n41A	20+20	40, 60, 80,100		140	0
			40, 60, 80,100	20+20		
		20+20	40, 50, 60, 80,100		140	1
			40, 50, 60, 80,100	20+20		
DC_41D_n41A	DC_41A_n41A	20+20+20	40, 60, 80,100		160	0
			40, 60, 80,100	20+20+20		
		20+20+20	40, 50, 60, 80,100		160	1
			40, 50, 60, 80,100	20+20+20		

## 5.3E UE Channel bandwidth for V2X

#### 5.3E.0 General

The requirements specified in clause 5.3B are applicable to NR V2X UE.

## 5.3E.1 Intra-band contiguous V2X in FR1

For intra-band contiguous E-UTRA NR V2X UE, an EN-DC bandwidth class in Table 5.3B.0-1 are considered to specify the V2X transmission/reception configurations.

Bandwidth combination sets and V2X transmission/reception configurations for intra-band contiguous V2X UE are specified in Table 5.3E.1-1.

Table 5.3E.1-1: E-UTRA-NR V2X configurations and bandwidth combination sets for intra-band contiguous V2X UE

V2X configuration	SL transmission band	Channel bandwidths for E-UTRA carrier (MHz)	Channel bandwidths for NR carrier (MHz)	Maximum aggregated bandwidth (MHz)	Bandwidth combination set
\/O\/ (-) 47AA	E-UTRA Band	10	10,20,30,40	00	0
V2X_(n)47AA	47 or NR band n47	20	10,20,30,40	60	U

## 5.3E.2 Intra-band non-contiguous V2X in FR1

For intra-band non-contiguous E-UTRA NR V2X UE, an EN-DC bandwidth class in Table 5.3B.0-1 are considered to specify the V2X transmission/reception configurations.

Bandwidth combination sets and SL transmission/reception configurations for intra-band non-contiguous V2X are specified in Table 5.3E.2-1.

Table 5.3E.2-1: E-UTRA-NR V2X configurations and bandwidth combination sets for intra-band noncontiguous V2X UE

V2X configuration	SL transmission band	Channel bandwidths for E-UTRA carrier (MHz)	Channel bandwidths for NR carrier (MHz)	Maximum aggregated bandwidth (MHz)	Bandwidth combination set
V2X_47A_n47A	E-UTRA Band	10	10,20,30,40	60	0
	47 or NR band n47	20	10,20,30,40	60	U

## 5.3E.3 Inter-band V2X in FR1

For inter-band E-UTRA NR V2X UE, the each channel bandwidth for inter-band V2X operations in FR1 is specified in TS 36.101 [4] and TS 38.101-1 [2], respectively.

### 5.4 Void

## 5.4A Channel arrangement for CA

The channel arrangement for CA operations in FR1 and FR2 as specified in TS 38.101-1 [2] and TS 38.101-2 [3], respectively.

## 5.4B Channel arrangement for DC

#### 5.4B.0 General

The channel arrangement for intra-band EN-DC operations in FR1 is specified in TS 36.101 [5] and TS 38.101-1 [2], respectively.

## 5.4B.1 Channel spacing for intra-band EN-DC carriers

The spacing between carriers will depend on the deployment scenario, the size of the frequency block available and the channel bandwidths. The nominal channel spacing between E-UTRA carrier and an adjacent NR carrier for intra-band contiguous EN-DC is defined as following:

- For NR operating bands with 100 kHz channel raster,

Nominal Channel spacing =  $(BW_{E-UTRA\_Channel} + BW_{NR\_Channel})/2$ 

- For NR operating bands with 15 kHz channel raster,

Nominal Channel spacing =  $(BW_{E\text{-}UTRA\_Channel} + BW_{NR\_Channel})/2 + \{-5kHz, 0kHz, 5kHz\}$  for  $\Delta F_{Raster}$  equals to 15 kHz

Nominal Channel spacing =  $(BW_{E\text{-}UTRA\_Channel} + BW_{NR\_Channel})/2 + \{-10kHz, 0kHz, 10kHz\}$  for  $\Delta F_{Raster}$  equals to 30 kHz

where  $BW_{E-UTRA\_Channel}$  and  $BW_{NR\_Channel}$  are the channel bandwidths of the E-UTRA and NR carriers,  $\Delta F_{Raster}$  is the band dependent channel raster granularity defined in TS38.101-1[2]. The channel spacing can be adjusted depending on the channel raster to optimize performance in a particular deployment scenario.

For intra-band non-contiguous EN-DC the channel spacing between E-UTRA and NR carriers shall be larger than the nominal channel spacing defined in this clause.

- 5.5 Configuration
- 5.5A Configuration for CA
- 5.5A.1 Inter-band CA configurations between FR1 and FR2

Table 5.5A.1-1: Inter-band CA configurations and bandwidth combinations sets between FR1 and FR2 (two bands)

NR CA configuration	Uplink CA configuration	NR Band						Chanı	nel ban	dwidth	(MHz) (I	NOTE 3	5)					Bandwidth combination set
			5	10	15	20	25	30	40	50	60	70	80	90	100	200	400	301
CA_n1A- n258A	CA_n1A-n258A	n1	5	10	15	20												0
		n258								50					100	200	400	
		n1	5	10	15	20	25	30	40	50								1
		n258								50					100	200	400	
CA_n1A- n258D	CA_n1A-n258A	n1	5	10	15	20												0
		n258								CA_n25	8D							
		n1	5	10	15	20	25	30	40	50	<u> </u>							1
		n258		1		1	1	1	1	CA_n25	8D		1	1	1		T	_
CA_n1A- n258E	CA_n1A-n258A	n1	5	10	15	20												0
		n258		1	_	1	1			CA_n25	8E				,	1	1	
		n1	5	10	15	20	25	30	40	50	<u></u>							1
		n258				1		1	1	CA_n25	8E	1	_	_	1		ı	
CA_n1A- n258F	CA_n1A-n258A	n1	5	10	15	20												0
		n258	_	1	1	1				CA_n25	8F	1	1	1	1	T	T	
		n1	5	10	15	20	25	30	40	50	0.5	<u> </u>						1
CA_n1A-	CA_n1A-n258A	n258 n1	5	10	15	20	1		1	CA_n25	8F T	ı			1	I	l	0
n258G	CA_IIIA-II256A	111	5	10	15	20												0
112300		n258			1					CA_n25	8G	<u> </u>						-
		n1	5	10	15	20	25	30	40	50	T T							1
		n258			1.0		1 20			CA_n25	8G	I				<u> </u>	l	† '
CA_n1A- n258H	CA_n1A-n258A	n1	5	10	15	20												0
		n258		1		1	1		1	CA_n25	8H				1		ı	1
		n1	5	10	15	20	25	30	40	50								1
		n258			•	•		•		CA_n25	8H				•	•	•	
CA_n1A-n258I	CA_n1A-n258A	n1	5	10	15	20												0
		n258								CA_n25	58I							
	n1 5	5	10	15	20	25	30	40	50								1	
		n258								CA_n25	81							
CA_n1A- n258J	CA_n1A-n258A	n1	5	10	15	20												0
		n258		_	_					CA_n25	8J							
		n1	5	10	15	20	25	30	40	50								1
		n258		1	1	1	1		1	CA_n25	8J				1	T	1	
CA_n1A- n258K	CA_n1A-n258A	n1	5	10	15	20												0
		n258								CA_n25	8K							

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NR CA configuration	Uplink CA configuration	NR Band						Chanr	nel ban	dwidth (	(MHz) (I	NOTE 3	)					Bandwidth combination set
			5	10	15	20	25	30	40	50	60	70	80	90	100	200	400	†
		n1	5	10	15	20	25	30	40	50								1
	•	n258		•	•	•		•		CA_n25	8K	•	•		•			
CA_n1A- n258L	CA_n1A-n258A	n1	5	10	15	20												0
		n258							(	CA_n25	8L							
		n1	5	10	15	20	25	30	40	50								1
		n258							(	CA_n25	8L							
CA_n1A- n258M	CA_n1A-n258A	n1	5	10	15	20												0
		n258							(	CA_n25	8M							
		n1	5	10	15	20	25	30	40	50								1
		n258							(	CA_n25	8M							
CA_n8A- n258A	CA_n8A-n258A	n8	5	10	15	20												0
CA_n78A- n258D	CA_n78A- n258A	n78		10	15	20			40	50	60		80	90	100			0
		n258							(	CA_n25	8D				•			
		n78		10	15	20	25	30	40	50	60	70	80	90	100			1
		n258							(	CA_n25	8D							
CA_n78A- n258E	CA_n78A- n258A	n78		10	15	20			40	50	60		80	90	100			0
		n258							(	CA_n25	8E				-			
		n78		10	15	20	25	30	40	50	60	70	80	90	100			1
		n258							(	CA_n25	8E							
CA_n78A- n258F	CA_n78A- n258A	n78		10	15	20			40	50	60		80	90	100			0
		n258								CA_n25								
		n78		10	15	20	25	30	40	50	60	70	80	90	100			1
		n258							(	CA_n25	8F							

NOTE 1: Reserved.

NOTE 2: The CA configurations are given in Table 5.5A.1-1 of either TS 38.521-1 [8] or TS 38.521-2 [9] where unless otherwise stated BCS0 is referred to. NOTE 3: The SCS of each channel bandwidth for NR FR1 and NR FR2 band refers to Table 5.3.5-1 of TS 38.521-1 [8] and TS 38.521-2 [9] respectively.

# 5.5B Configuration for DC

#### 5.5B.1 General

The operating bands and bandwidth classes are specified for operation with EN-DC, NGEN-DC, NE-DC or NR-DC configured. The EN-DC, NE-DC or NGEN-DC band combinations include at least one E-UTRA operating band.

For EN-DC or NE-DC configurations indicated by column "Single Uplink allowed" (e.g., problematic band combinations as defined in TS 38.306 [16]) in tables in this clause the UE may indicate capability of not supporting simultaneous dual and triple uplink operation due to possible intermodulation interference to its own primary downlink channel bandwidth of PCell or PSCell if the intermodulation order is 2 or if the intermodulation order is 3 for the combinations when both operating bands are between 450 MHz – 960 MHz or between 1427 MHz – 2690 MHz.

In the case for EN-DC or NE-DC configurations listed in tables in this clause for which the intermodulation products caused by the dual and triple uplink operation fall into the receive band but do not interfere with its own primary downlink channel bandwidth of PCell or PSCell as defined in Annex I the UE is mandated to operate in dual and triple uplink mode. Single Uplink is also allowed for certain band combinations where intermodulation or reverse intermodulation products could create difficulty for meeting emission requirements.

For EN-DC combinations of order 3 or higher, "Single Uplink allowed" UL configurations captured in Table 5.5B.2-1, Table 5.5B.3-1, and Table 5.5B.4-1 apply.

Non-contiguous resource allocation and almost contiguous allocation are not applicable for E-UTRA or NR carrier part of intra-band EN-DC configuration.

If multiple UL DC configurations are listed for multiple DL DC configurations, valid uplink configurations are such that uplink does not have more carriers than downlink.

Non-contiguous resource allocation and almost contiguous allocation are not applicable for E-UTRA or NR carrier part of intra-band EN-DC configuration.

If the mandatory simultaneous Rx/Tx capability applies for a lower order DC configuration, when the applicable lower order DC configuration is a band pair in a higher order DC configuration, the mandatory simultaneous Rx/Tx capability also applies for the band pair in the higher order DC configuration.

# 5.5B.2 Intra-band contiguous EN-DC

Supported channel bandwidths for E-UTRA operating bands are defined in TS 36.521-1 [10] and for NR operating bands in TS 38.521-1 [8].

Table 5.5B.2-1: Intra-band contiguous EN-DC configurations

EN-DC Configuration	Uplink EN-DC configuration (NOTE 1)	Single UL allowed
DC_(n)41AA <sup>5</sup> DC_(n)41CA <sup>5</sup>	DC_(n)41AA	Yes <sup>3</sup>
DC_(n)41CA <sup>5</sup>	DC_41A_n41A	Yes <sup>3</sup>
DC_(n)71AA <sup>2</sup>	DC_(n)71AA	No <sup>4</sup>

NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.

NOTE 2: Requirements in this specification apply for NR SCS of 15 kHz only.

NOTE 3: Single UL allowed due to potential emission issues, not self-interference.

NOTE 4: For UE(s) supporting dynamic power sharing it is mandatory to do dual simultaneous UL. For UE(s) not supporting dynamic power sharing single UL is allowed.

NOTE 5: The minimum requirements only apply for non-simultaneous Tx/Rx between all carriers.

# 5.5B.3 Intra-band non-contiguous EN-DC

Supported channel bandwidths for E-UTRA operating bands are defined in TS 36.521-1 [10] and for NR operating bands in TS 38.521-1 [8].

Table 5.5B.3-1: Intra-band non-contiguous EN-DC configurations

Е	N-DC Configuration	Uplink EN-DC configuration (NOTE 1)	Single UL allowed				
	DC_41A_n41A <sup>3</sup> DC_41C_n41A <sup>3</sup> DC_41D_n41A <sup>3</sup>	DC_41A_n41A	Yes <sup>4</sup>				
	DC_66A_n66A	DC_66A_n66A <sup>5</sup>	Yes⁵				
NOTE 1:	Uplink EN-DC configurations are the configurations supported by the present release of specifications.						
		Only single switched UL is supported in Rel-15					
NOTE 3:	The minimum requirements	The minimum requirements only apply for non-simultaneous Tx/Rx between all carriers.					
NOTE 4:	Single UL allowed due to potential emission issues, not self-interference.						
NOTE 5:	Only single switched UL is supported.						
NOTE 6:							
NOTE 7:	Single UL allowed due to po	tential emission issues and self-interferenc	e.				

### 5.5B.4 Inter-band EN-DC within FR1

Supported channel bandwidths for E-UTRA operating bands and CA configurations are defined in TS 36.521-1 [10] and for NR operating bands and CA configurations in TS 38.521-1 [8] and present document.

5.5B.4.1 Inter-band EN-DC configurations within FR1 (two bands)

Table 5.5B.4.1-1: Inter-band EN-DC configurations within FR1 (two bands)

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)	Single UL allowed	DL interruption allowed (Note 14)
DC_1A_n3A	DC_1A_n3A	DC_1_n3	
DC_1A_n5A	DC_1A_n5A	No	
DC_1A_n7A	DC_1A_n7A	No	
DC_1A_n28A	DC_1A_n28A	No	
DC_1A_n77A <sup>7</sup>	DC_1A_n77A	DC_1_n77	No
DC_1A_n78A <sup>7</sup>	DC_1A_n78A	No	No
DC_1A_n78C <sup>7</sup>			
DC_1A-1A_n78A	DC_1A_n78A	No	
DC_1A_n79A <sup>7</sup>	DC_1A_n79A	No	No
DC_1A_n79C <sup>7</sup>	DC 24 nF4	No	
DC_2A_n5A DC_2A_n41A	DC_2A_n5A DC_2A_n41A	No	+
DC_2A_141A DC_2C_n41A	DC_2A_1141A DC_2C_n41A	NO	
DC_2A_n66A	DC_2A_n66A	DC_2_n66	
DC_2A_n71A	DC_2A_n71A	No	
DC_2A_n77A	DC_2A_n77A	DC_2_n77	
DC_2A_n78A	DC_2A_n78A	DC_2_n78	
DC_3A_n1A	DC_3A_n1A	DC_3_n1	
DC_3A_n5A	DC_3A_n5A	DC_3_n5	
DC_3A_n7A	DC_3A_n7A	No	
DC_3A_n28A	DC_3A_n28A	No	
DC_3A_n41A <sup>7</sup>	DC_3A_n41A	DC_3_n41	No
DC_3A_n77A <sup>7</sup>	DC_3A_n77A	DC_3_n77	No
DC_3A_n78A <sup>7</sup>	DC_3A_n78A	DC_3_n78	No
DC_3A_n78C <sup>7</sup>			
DC_3C_n78A <sup>7</sup>			
DC_3A_n79A <sup>7</sup>	DC_3A_n79A	No	No
DC_3A_n79C <sup>7</sup>			
DC_5A_n2A	DC_5A_n2A	No	
DC_5A_n66A	DC_5A_n66A	DC_5_n66	
DC_5A_n77A	DC_5A_n77A	No	
DC_5A_n78A <sup>7</sup> DC_5A_n78C <sup>7</sup>	DC_5A_n78A	No	No
DC_7A_n1A	DC_7A_n1A	No	
DC_7A_n3A	DC_7A_n3A	No	
DC_7A_n5A	DC_7A_n5A	DC_7_n5	
DC_7A_n28A	DC_7A_n28A	No	
DC_7A_n66A DC_7C_n66A	DC_7A_n66A	No	
DC_7A_n78A <sup>7</sup> DC_7C_n78A <sup>7</sup>	DC_7A_n78A	No	
DC_7A-7A_n78A <sup>7, 21</sup>	DC_7A_n78A <sup>21</sup>	No	
DC_8A_n1A	DC_8A_n1A	No	
DC_8A_n3A	DC_8A_n3A	No	
DC_8A_n20A	DC_8A_n20A	Yes	
DC_8A_n41A <sup>7</sup>	DC_8A_n41A	No	No
DC_8A_n77A <sup>7</sup>	DC_8A_n77A	No	No
DC_8A_n78A <sup>7</sup>	DC_8A_n78A	No	No
DC_11A_n77A <sup>7</sup>	DC_11A_n77A	No	No
DC_11A_n78A <sup>7</sup>	DC_11A_n78A	No	No
DC_11A_n79A <sup>7</sup>	DC_11A_n79A	No	
DC_12A_n5A	DC_12A_n5A	No	
DC_12A_n66A	DC_12A_n66A	No DO 10 70	
DC_12A_n78A	DC_12A_n78A	DC_12_n78	
DC_13A_n2A	DC_13A_n2A	No No	+
DC_13A_n66A	DC_13A_n66A	No No	-
DC_13A_n77A	DC_13A_n77A	No No	
DC_14A_n2A	DC_14A_n2A	No No	
DC_14A_n66A DC_18A_n77A <sup>7</sup>	DC_14A_n66A DC_18A_n77A	No No	No
DC_18A_n78A <sup>7</sup>	DC_18A_n77A  DC_18A_n78A	No No	No No
DC_18A_n78A <sup>7</sup> DC_18A_n79A <sup>7</sup>	DC_18A_n78A DC_18A_n79A	No No	INU
DC_16A_n79A	DC_18A_n1A	No No	1
DO_19V_IIIK	PO_19V_IIIK	INO	

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)	Single UL allowed	DL interruption allowed (Note 14)
DC_19A_n77A <sup>7</sup> DC_19A_n77C <sup>7</sup>	DC_19A_n77A	No	
DC_19A_n78A <sup>7</sup> DC_19A_n78C <sup>7</sup>	DC_19A_n78A	No	No
DC_19A_n79A <sup>7</sup>	DC_19A_n79A	No	No
DC_20A_n1A	DC_20A_n1A	No	
DC_20A_n3A	DC_20A_n3A	No	
DC_20A_n7A	DC_20A_n7A	DC_20_n7	
DC_20A_n8A	DC_20A_n8A	DC_20_n8	
DC_20A_n28A <sup>8,11,13</sup>	DC_20A_n28A	No	
DC_20A_n78A <sup>7</sup>	DC_20A_n78A	No	
DC_21A_n1A	DC_21A_n1A	No	
DC_21A_n28A <sup>17</sup>	DC_21A_n28A	DC_21_n28	
DC_21A_n77A <sup>7</sup>	DC_21A_n77A	No	
DC_21A_n78A <sup>7</sup> DC_21A_n78C <sup>7</sup>	DC_21A_n78A	No	No
DC_21A_n79A <sup>7</sup> DC_21A_n79C <sup>7</sup>	DC_21A_n79A	No	No
DC_25A_n41A	DC_25A_n41A	No	
DC_26A_n41A	DC_26A_n41A	No	
DC_26A_n77A <sup>7</sup>	DC_26A_n77A	No	
DC_26A_n78A <sup>7</sup>	DC_26A_n78A	No	
DC_26A_n79A <sup>7</sup>	DC_26A_n79A	No	
DC_28A_n3A	DC_28A_n3A	No	
DC_28A_n5A <sup>8</sup>	DC_28A_n5A	No	
DC_28A_n7A	DC_28A_n7A	No	<u> </u>
DC_28A_n77A <sup>7</sup>	DC_28A_n77A	No No	No
DC_28A_n78A <sup>7</sup>	DC_28A_n78A	No	No
DC_28A_n78C <sup>7</sup>	DC 204 ~704	No	
DC_28A_n79A <sup>7</sup> DC_30A_n5A	DC_28A_n79A DC_30A_n5A	No No	
DC_30A_n66A	DC_30A_n66A	No	
DC_38A_n78A <sup>7</sup>	DC_38A_n78A	No	
DC_39A_n41A <sup>3</sup>	DC_39A_n41A	No	No
DC_39C_n41A <sup>3</sup>	DC_39C_n41A	140	
DC_39A_n79A <sup>7</sup>	DC_39A_n79A	No	No
DC_40A_n1A	DC_40A_n1A	No	
DC_40A_n41A <sup>3</sup>	DC_40A_n41A	No	
DC_40A_n78A	DC_40A_n78A	No	
DC_40C_n78A	DC_40C_n78A		
DC_40A_n79A <sup>7,12</sup> DC_40C_n79A <sup>7,12</sup>	DC_40A_n79A	No	No
DC_41A_n77A	DC_41A_n77A	No	
DC_41C_n77A			
DC_41A_n78A	DC_41A_n78A	No	
DC_41C_n78A			
DC_41A_n79A <sup>6,7</sup>	DC_41A_n79A	No	No
DC_42A_n77A <sup>3,4,9,11</sup>	N/A	N/A	
DC_42C_n77A <sup>3,4,9,11</sup>			
DC_42D_n77A <sup>3,4,9,11</sup>	N1/A	<b>N</b> 1/A	
DC_42A_n78A <sup>3,4,9,11</sup> DC_42A_n78C <sup>3,4,9,11</sup> DC_42C_n78A <sup>3,4,9,11</sup> DC_42C_n78C <sup>3,4,9,11</sup> DC_42D_n78A <sup>3,4,9,11</sup> DC_42E_n78A <sup>3,4,9,11</sup>	N/A	N/A	
DC_42A_n79A <sup>9,15</sup> DC_42A_n79C <sup>9,15</sup> DC_42C_n79A <sup>9,15</sup> DC_42C_n79C <sup>9,15</sup> DC_42D_n79A <sup>9,15</sup> DC_42E_n79A <sup>9,15</sup>	N/A DC 484 n54	N/A	
DC_48A_n5A	DC_48A_n5A	No	

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)	Single UL allowed	DL interruption allowed (Note 14)
DC_48A_n66A	DC_48A_n66A	No	
DC_66A_n2A	DC_66A_n2A	DC_66_n2	
DC_66A_n5A	DC_66A_n5A	DC_66_n5	
DC_66A_n41A	DC_66A_n41A	No	
DC_66A_n71A	DC_66A_n71A	No	
DC_66A_n78A	DC_66A_n78A	No	

- NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.
- NOTE 2: Restricted to E-UTRA operation when inter-band carrier aggregation is configured. The downlink operating band for Band 46 is paired with the uplink operating band (external E-UTRA band) of the carrier aggregation configuration that is supporting the configured PCell.
- NOTE 3: The minimum requirements apply only when there is non-simultaneous Tx/Rx operation between E-UTRA and NR carriers. This restriction applies also for these carriers when applicable EN-DC configuration is part of a higher order EN-DC configuration.
- NOTE 4: For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, the minimum requirements for intraband non-contiguous EN-DC apply for the Band 42/48 and Band n77/n78 combination. For UEs not indicating *interBandMRDC-WithOverlapDL-Bands-r16*, when UE capability *interBandContiguousMRDC* is indicated, the minimum requirements for intra-band-contiguous EN-DC also should be met in addition to intra-band non-contiguous EN-DC. The intra-band requirements also apply for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration.
- NOTE 5: The frequency range above 3600 MHz for Band n78 is not used in this combination.
- NOTE 6: The frequency range below 2506 MHz for Band 41 is not used in this combination.
- NOTE 7: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability.
- NOTE 8: The frequency range in band n28 is restricted for this band combination to 703 733 MHz for the UL and 758-788 MHz for the DL.
- NOTE 9: The combination is not used alone as fall back mode of other band combinations in which UL in Band 42 is not used.
- NOTE 10: Void.
- NOTE 11: For UEs not indicating *interBandMRDC-WithOverlapDL-Bands-r16*, the minimum requirements for interband EN-DC apply when the maximum power spectral density imbalance between downlink carriers is within 6 dB. For UEs indicating interBandMRDC-WithOverlapDL-Bands-r16, the power imbalance requirement defined in clause 7.6B.2.6 of 38.101-3 [4] apply. For these UEs, the power spectral density imbalance condition also applies for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration.
- NOTE 12: Applicable for frequency range above 4800 MHz for Band n79 in this combination.
- NOTE 13: For UEs not indicating *interBandMRDC-WithOverlapDL-Bands-r16*, the minimum requirements apply for synchronized DL carriers with a maximum receive time difference ≤ 3 usec. The requirements also apply for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration.
- NOTE 14: Applicable when dynamic switching between two uplink carriers is conducted. The DL interruption requirements for NR DL carrier(s) and E-UTRA DL carrier(s) are specified in clause 8.2.1.2.14 of 38.133 [25] and clause 7.32.2.12 of 36.133 [12] respectively.
- NOTE 15: Simultaneous Rx/Tx capability does not apply for UEs supporting band 42 with a n77 implementation only. Same restrictions are applied to related higher order configurations.
- NOTE 16: Reserved.
- NOTE 17: The frequency range in band n28 is restricted for this band combination to 728 738 MHz for the UL and 783 793 MHz for the DL. This restriction applies also for these band combinations when applicable EN-DC configuration is part of a higher order EN-DC configuration. Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1.
- NOTE 18: Reserved.
- NOTE 19: Reserved.
- NOTE 20: Reserved.
- NOTE 21: PC3 or PC2 Uplink EN-DC configuration is applicable to EN-DC configurations.

5.5B.4.2 Inter-band EN-DC configurations within FR1 (three bands)

Table 5.5B.4.2-1: Inter-band EN-DC configurations within FR1 (three bands)

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-3A_n28A	DC_1A_n28A DC_3A_n28A
DC_1A-3A_n77A <sup>5</sup>	DC_1A_n77A DC_3A_n77A
DC_1A-3A_n78A <sup>5</sup> DC_1A-3C_n78A <sup>5</sup>	DC_1A_n78A DC_3A_n78A DC_3C_n78A
DC_1A-1A-3A_n78A DC_1A-1A-3C_n78A	DC_1A_n78A DC_3A_n78A DC_3C_n78A
DC_1A-3C_n78(2A) <sup>5</sup>	DC_1A_n78A DC_3A_n78A DC_3C_n78A
DC_1A-3A_n79A <sup>5</sup>	DC_1A_n79A DC_3A_n79A
DC_1A-5A_n78A <sup>5</sup> DC_1A-5A_n78C <sup>5</sup>	DC_1A_n78A DC_5A_n78A
DC_1A-1A-5A_n78A	DC_1A_n78A DC_5A_n78A
DC_1A-7A_n3A	DC_1A_n3A DC_7A_n3A
DC_1A-7A_n28A <sup>5</sup>	DC_1A_n28A DC_7A_n28A
DC_1A-7A_n78A <sup>5</sup>	DC_1A_n78A DC_7A_n78A
DC_1A-8A_n3A	DC_1A_n3A DC_8A_n3A
DC_1A-8A_n78A <sup>5</sup>	DC_1A_n78A DC_8A_n78A
DC_1A-8A_n78(2A) <sup>5</sup>	DC_1A_n78A DC_8A_n78A
DC_1A-19A_n77A⁵	DC_1A_n77A DC_19A_n77A
DC_1A-19A_n78A <sup>5</sup> DC_1A-19A_n78C <sup>5</sup>	DC_1A_n78A DC_19A_n78A
DC_1A-19A_n79A <sup>5</sup> DC_1A-19A_n79C <sup>5</sup>	DC_1A_n79A DC_19A_n79A
DC_1A-20A_n3A	DC_1A_n3A DC_20A_n3A
DC_1A-20A_n8A	DC_1A_n8A DC_20A_n8A
DC_1A-20A_n28A <sup>6,11,12</sup>	DC_1A_n28A DC_20A_n28A
DC_1A-20A_n78A⁵	DC_1A_n78A DC_20A_n78A
DC_1A-21A_n77A⁵	DC_1A_n77A DC_21A_n77A
DC_1A-21A_n78A <sup>5</sup> DC_1A-21A_n78C <sup>5</sup>	DC_1A_n78A DC_21A_n78A
DC_1A-21A_n79A <sup>5</sup> DC_1A-21A_n79C <sup>5</sup>	DC_1A_n79A DC_21A_n79A
DC_1A-28A_n3A	DC_1A_n3A DC_28A_n3A
DC_1A-28A_n5A <sup>6</sup>	DC_1A_n5A DC_28A_n5A
DC_1A_n28A-n78A <sup>5</sup>	DC_1A_n28A DC_1A_n78A

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-28A_n79A DC_1A-28A_n79C	DC_1A_n79A DC_28A_n79A
DC_1A-41A_n28A <sup>5</sup>	DC_1A_n28A
DC_1A-41C_n28A <sup>5</sup>	DC_41A_n28A DC_41C_n28A
DC_1A-41A_n77A	DC_1A_n77A DC_41A_n77A
DC 1A-41A n78A	DC_1A_n78A
DC_1A-42A_n77A <sup>10,11</sup>	DC_41A_n78A
DC_1A-42C_n77A <sup>10,11</sup> DC_1A-42D_n77A <sup>10,11</sup>	DC_1A_n77A
DC_1A-42A_n78A <sup>10,11</sup> DC_1A-42A_n78C <sup>10,11</sup> DC_1A-42C_n78A <sup>10,11</sup> DC_1A-42C_n78C <sup>10,11</sup> DC_1A-42D_n78A <sup>10,11</sup> DC_1A-42E_n78A <sup>10,11</sup>	DC_1A_n78A
DC_1A-42A_n79A DC_1A-42A_n79C DC_1A-42C_n79A DC_1A-42C_n79C DC_1A-42D_n79A DC_1A-42E_n79A	DC_1A_n79A
DC_1A_n77A-n79A	DC_1A_n77A DC_1A_n79A
DC_1A_n78A-n79A	DC_1A_n78A DC_1A_n79A
DC_2A-5A_n66A	DC_2A_n66A DC_5A_n66A
DC_2A-12A_n66A	DC_2A_n66A DC_12A_n66A
DC_2A-13A_n77A	DC_2A_n77A DC_13A_n77A
DC_2A-14A_n2A	DC_2A_n2A <sup>2</sup> DC_14A_n2A
DC_2A-14A_n66A	DC_2A_n66A DC_14A_n66A
DC_2A-2A-14A_n66A	DC_2A_n66A DC_14A_n66A
DC_2A-30A_n66A	DC_2A_n66A DC_30A_n66A
DC_2A-66A_n5A	DC_2A_n5A DC_66A_n5A
DC_2A-66A_n41A	DC_2A_n41A DC_66A_n41A
DC_2A-66A_n71A	DC_2A_n71A DC_66A_n71A
DC_2A-66A_n77A	DC_2A_n77A DC_66A_n77A
DC_2A-(n)71AA	DC_2A_n71A DC_(n)71AA
DC_3A_n1A-n78A <sup>5</sup>	DC_3A_n1A DC_3A_n78A
DC_3A_n1A-n79A <sup>5</sup>	DC_3A_n1A DC_3A_n79A
DC_3A-5A_n78A <sup>5</sup> DC_3A-5A_n78C <sup>5</sup>	DC_3A_n78A DC_5A_n78A

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_3A-7A_n5A	DC_3A_n5A DC_7A_n5A
DC_3A-7A_n28A	DC_3A_n28A DC_7A_n28A
DC_3A-7A_n78A <sup>5</sup> DC_3C-7A_n78A <sup>5</sup>	DC_3A_n78A DC_7A_n78A
DC_3C-7A_1176A-	DC_3A_n1A
DC_3A-8A_n28A	DC_8A_n1A DC_3A_n28A
	DC_8A_n28A DC_3A_n78A
DC_3A-8A_n78A <sup>5</sup>	DC_8A_n78A DC_3A_n77A
DC_3A-18A_n77A	DC_18A_n77A
DC_3A-8A_n78(2A)	DC_3A_n78A DC_8A_n78A
DC_3A-18A_n78A	DC_3A_n78A DC_18A_n78A
DC_3A-19A_n77A <sup>5</sup>	DC_3A_n77A DC_19A_n77A
DC_3A-19A_n78A⁵ DC_3A-19A_n78C⁵	DC_3A_n78A DC_19A_n78A
DC_3A-19A_n79A <sup>5</sup> DC_3A-19A_n79C <sup>5</sup>	DC_3A_n79A DC_19A_n79A
DC_3A-20A_n1A	DC_3A_n1A DC_20A_n1A
DC_3A-20A_n28A <sup>5,6,11,12</sup>	DC_3A_n28A DC_20A_n28A
DC_3A-20A_n78A <sup>5</sup>	DC_3A_n78A DC_20A_n78A
DC_3A-21A_n77A <sup>5</sup>	DC_3A_n77A DC_21A_n77A
DC_3A-21A_n78A <sup>5</sup> DC_3A-21A_n78C <sup>5</sup>	DC_3A_n78A DC_21A_n78A
DC_3A-21A_n79A <sup>5</sup> DC_3A-21A_n79C <sup>5</sup>	DC_3A_n79A DC_21A_n79A
DC_3A-28A_n78A <sup>5</sup>	DC_3A_n78A DC_28A_n78A
DC_3A_n28A-n78A <sup>5</sup>	DC_3A_n28A DC_3A_n78A
DC_3A-40A_n1A	DC_3A_n1A DC_40A_n1A
DC_3A-41A_n28A <sup>5</sup> DC_3A-41C_n28A <sup>5</sup>	DC_3A_n28A DC_41A_n28A DC_41C_n28A
DC_3A-41A_n41A	DC_3A_n41A
DC_3A-41A_n77A DC_3A-41C_n77A	DC_3A_n77A DC_41A_n77A
DC_3A-41A_n77(2A)	DC_3A_n77A DC_41A_n77A
DC_3A-42A_n77A <sup>10,11</sup> DC_3A-42C_n77A <sup>10,11</sup> DC_3A-42D_n77A <sup>10,11</sup>	DC_3A_n77A

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_3A-42A_n78A <sup>10,11</sup> DC_3A-42A_n78C <sup>10,11</sup> DC_3A-42C_n78A <sup>10,11</sup> DC_3A-42C_n78C <sup>10,11</sup> DC_3A-42D_n78A <sup>10,11</sup> DC_3A-42E_n78A <sup>10,11</sup>	DC_3A_n78A
DC_3A-42A_n79A DC_3A-42A_n79C DC_3A-42C_n79A DC_3A-42C_n79C DC_3A-42D_n79A DC_3A-42E_n79A	DC_3A_n79A
DC_3A_n77A-n79A	DC_3A_n77A DC_3A_n79A
DC_3A_n78A-n79A	DC_3A_n78A DC_3A_n79A
DC_5A-7A_n78A	DC_5A_n78A DC_7A_n78A
DC_5A-30A_n66A	DC_5A_n66A DC_30A_n66A
DC_7A_n5A-n78A DC_7C_n5A-n78A	DC_7A_n5A DC_7C_n5A DC_7A_n78A DC_7C_n78A
DC_7A-8A_n1A	DC_7A_n1A DC_8A_n1A
DC_7A-8A_n3A	DC_7A_n3A DC_8A_n3A
DC_7A-20A_n1A	DC_7A_n1A DC_20A_n1A
DC_7A-20A_n3A	DC_7A_n3A DC_20A_n3A
DC_7A-20A_n8A	DC_7A_n8A DC_20A_n8A
DC_7A-20A_n28A <sup>6,11,12</sup>	DC_7A_n28A DC_20A_n28A
DC_7A-20A_n78A <sup>5</sup>	DC_7A_n78A DC_20A_n78A
DC_7A-28A_n3A	DC_7A_n3A DC_28A_n3A
DC_7A-28A_n5A <sup>6</sup>	DC_7A_n5A DC_28A_n5A
DC_7A-28A_n78A <sup>5</sup>	DC_7A_n78A DC_28A_n78A
DC_7A_n28A-n78A⁵ DC_7C_n28A-n78A	DC_7A_n28A DC_7A_n78A DC_7C_n28A DC_7C_n78A
DC_12A-30A_n66A	DC_12A_n66A DC_30A_n66A
DC_13A-66A_n77A	DC_13A_n77A DC_66A_n77A
DC_18A-41A_n3A	DC_18A_n3A DC_41A_n3A
DC_18A-41A_n77A DC_18A-41C_n77A	DC_18A_n77A DC_41A_n77A DC_41C_n77A
DC_18A-41A_n78A DC_18A-41C_n78A	DC_18A_n78A DC_41A_n78A DC_41C_n78A

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_19A_n1A-n78A <sup>5</sup>	DC_19A_n1A DC_19A_n78A
DC_19A_n1A-n79A <sup>5</sup>	DC_19A_n1A DC_19A_n79A
DC_19A-21A_n77A <sup>5</sup>	DC_19A_n77A DC_21A_n77A
DC_19A-21A_n78A <sup>5</sup> DC_19A-21A_n78C <sup>5</sup>	DC_19A_n78A DC_21A_n78A
DC_19A-21A_n79A <sup>5</sup> DC_19A-21A_n79C <sup>5</sup>	DC_19A_n79A DC_21A_n79A
DC_19A-42A_n77ADC_19A-42C_n77A	DC_19A_n77A
DC_19A-42A_n78A DC_19A-42C_n78A DC_19A-42A_n78C DC_19A-42C_n78C	DC_19A_n78A
DC_19A-42A_n79A DC_19A-42C_n79A DC_19A-42A_n79C DC_19A-42C_n79C	DC_19A_n79A
DC_19A_n77A-n79A	DC_19A_n77A DC_19A_n79A
DC_19A_n78A-n79A	DC_19A_n78A DC_19A_n79A
DC_20A_n28A-n78A <sup>5,6,11,12</sup>	DC_20A_n28A DC_20A_n78A
DC_20A_n76A-n78A <sup>5</sup>	DC_20A_n78A
DC_21A_n1A-n78A <sup>5</sup>	DC_21A_n1A DC_21A_n78A
DC_21A_n1A-n79A <sup>5</sup>	DC_21A_n1A DC_21A_n79A
DC_21A-42A_n77A <sup>10,11</sup> DC_21A-42C_n77A <sup>10,11</sup>	DC_21A_n77A
DC_21A-42A_n78A <sup>10,11</sup> DC_21A-42A_n78C <sup>10,11</sup> DC_21A-42C_n78A <sup>10,11</sup> DC_21A-42C_n78C <sup>10,11</sup>	DC_21A_n78A
DC_21A-42A_n79A DC_21A-42A_n79C DC_21A-42C_n79A DC_21A-42C_n79C	DC_21A_n79A
DC_21A_n77A-n79A	DC_21A_n77A DC_21A_n79A
DC_21A_n78A-n79A	DC_21A_n78A DC_21A_n79A
DC_28A_n7A-n78A	DC_28A_n7A DC_28A_n78A
DC_28A-42A_n78A <sup>10,11</sup>	DC_28A_n78A
DC_41A-42A_n78A <sup>10,11</sup>	DC_41A_n78A
DC_66A-(n)71AA	DC_66A_n71A DC_(n)71AA

#### **EN-DC** configuration

#### **Uplink EN-DC configuration (NOTE 1)**

- NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.
- NOTE 2: Only single switched UL is supported.
- NOTE 3: Restricted to E-UTRA operation when inter-band carrier aggregation is configured. The downlink operating band for Band 46 is paired with the uplink operating band (external E-UTRA band) of the carrier aggregation configuration that is supporting the configured PCell
- NOTE 4: If a UE is configured with both NR UL and NR SUL carriers in a cell, the switching time between NR UL carrier and NR SUL carrier can be up to 140us and placed in SUL resources.
- NOTE 5: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability
- NOTE 6: The frequency range in band n28 is restricted for this band combination to 703-733 MHz for the UL and 758-788 MHz for the DL.
- NOTE 7: Void.
- NOTE 8: Reserved.
- NOTE 9: Reserved.
- NOTE 10: For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, the minimum requirements for intra-band non-contiguous EN-DC apply for the Band 42 and Band n77/n78 combination. For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, when UE capability interBandContiguousMRDC is indicated, the minimum requirements for intra-band-contiguous EN-DC also should be met in addition to intra-band non-contiguous EN-DC.
- NOTE 11: For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, the minimum requirements for inter-band EN-DC apply when the maximum power spectral density imbalance between downlink carriers contained in overlapping or partially overlapping DL bands is within 6 dB.
- NOTE 12: For UEs not indicating *interBandMRDC-WithOverlapDL-Bands-r16*, the minimum requirements apply for synchronized DL carriers with a maximum receive time difference ≤ 3 usec between overlapping or partially overlapping DL bands contained in different cell groups.

5.5B.4.3 Inter-band EN-DC configurations within FR1 (four bands)

Table 5.5B.4.3-1: Inter-band EN-DC configurations within FR1 (four bands)

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-3A-7A_n28A	DC_1A_n28A DC_3A_n28A DC_7A_n28A
DC_1A-3A-7A_n78A <sup>2</sup>	DC_1A_n78A DC_3A_n78A DC_7A_n78A
DC_1A-3A-8A_n78A <sup>2</sup>	DC_1A_n78A DC_3A_n78A DC_8A_n78A
DC_1A-3A-19A_n77A <sup>2</sup>	DC_1A_n77A DC_3A_n77A DC_19A_n77A
DC_1A-3A-19A_n78A <sup>2</sup>	DC_1A_n78A DC_3A_n78A DC_19A_n78A
DC_1A-3A-19A_n79A <sup>2</sup>	DC_1A_n79A DC_3A_n79A DC_19A_n79A
DC_1A-3A-20A_n28A <sup>3,7,8</sup>	DC_1A_n28A DC_3A_n28A DC_20A_n28A
DC_1A-3A-20A_n78A <sup>2</sup>	DC_1A_n78A DC_3A_n78A DC_20A_n78A
DC_1A-3A-21A_n77A <sup>2</sup>	DC_1A_n77A DC_3A_n77A DC_21A_n77A
DC_1A-3A-21A_n78A <sup>2</sup>	DC_1A_n78A DC_3A_n78A DC_21A_n78A
DC_1A-3A-21A_n79A <sup>2</sup>	DC_1A_n79A DC_3A_n79A DC_21A_n79A
DC_1A-3A-28A_n78A <sup>2</sup>	DC_1A_n78A DC_3A_n78A DC_28A_n78A
DC_1A-3A_n28A-n78A <sup>2</sup>	DC_1A_n28A DC_1A_n78A DC_3A_n28A DC_3A_n78A
DC_1A-3A-42A_n78A <sup>6,7</sup> DC_1A-3A-42C_n78A <sup>6,7</sup> DC_1A-3A-42D_n78A <sup>6,7</sup>	DC_1A_n78A DC_3A_n78A
DC_1A-3A-42A_n79A DC_1A-3A-42C_n79ADC_1A-3A-42D_n79A	DC_1A_n79A DC_3A_n79A
DC_1A-7A-20A_n28A <sup>3,7,8</sup>	DC_1A_n28A DC_7A_n28A DC_20A_n28A
DC_1A-7A-20A_n78A <sup>2</sup>	DC_1A_n78A DC_7A_n78A DC_20A_n78A
DC_1A-7A-28A_n78A	DC_1A_n78A DC_7A_n78A DC_28A_n78A
DC_1A-7A_n28A-n78A <sup>2</sup>	DC_1A_n28A DC_1A_n78A DC_7A_n28A DC_7A_n78A
DC_1A-19A-21A_n77A	DC_1A_n77A DC_19A_n77A DC_21A_n77A

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-19A-21A_n78A <sup>2</sup> DC_1A-19A-21A_n78C <sup>2</sup>	DC_1A_n78A DC_19A_n78A DC_21A_n78A
DC_1A-19A-21A_n79A DC_1A-19A-21A_n79C	DC_1A_n79A DC_19A_n79A DC_21A_n79A
DC_1A-19A-42A_n77A <sup>6,7</sup> DC_1A-19A-42C_n77A <sup>6,7</sup>	DC_19A_n77A
DC_1A-19A-42A_n78A DC_1A-19A-42A_n78C DC_1A-19A-42C_n78A DC_1A-19A-42C_n78C	DC_1A_n78A DC_19A_n78A
DC_1A-19A-42A_n79A DC_1A-19A-42A_n79C DC_1A-19A-42C_n79A DC_1A-19A-42C_n79C	DC_1A_n79A DC_19A_n79A
DC_1A-20A_n28A-n78A <sup>2,3,7,8</sup>	DC_1A_n28A DC_1A_n78A DC_20A_n28A DC_20A_n78A
DC_1A-21A-42A_n77A <sup>6,7</sup> DC_1A-21A-42C_n77A <sup>6,7</sup>	DC_1A_n77A DC_21A_n77A
DC_1A-21A-42A_n78A <sup>6,7</sup> DC_1A-21A-42A_n78C <sup>6,7</sup> DC_1A-21A-42C_n78A <sup>6,7</sup> DC_1A-21A-42C_n78C <sup>6,7</sup>	DC_1A_n78A DC_21A_n78A
DC_1A-21A-42A_n79A DC_1A-21A-42A_n79C DC_1A-21A-42C_n79A DC_1A-21A-42C_n79C	DC_1A_n79A DC_21A_n79A
DC_2A-7A-13A_n66A DC_2A-7C-13A_n66A	DC_2A_n66A DC_7A_n66A DC_13A_n66A
DC_2A-7A-7A-13A_n66A	DC_2A_n66A DC_7A_n66A DC_13A_n66A
DC_2A-7A-66A_n66A DC_2A-7C-66A_n66A	DC_2A_n66A DC_7A_n66A DC_66A_n66A <sup>4</sup>
DC_2A-7A-7A-66A_n66A	DC_2A_n66A DC_7A_n66A DC_66A_n66A <sup>4</sup>
DC_2A-7C-66A_n78A	DC_2A_n78A DC_7A_n78A DC_66A_n78A
DC_2A-7A-7A-66A_n78A	DC_2A_n78A DC_7A_n78A DC_66A_n78A
DC_2A-13A-66A_n77A	DC_2A_n77A DC_13A_n77A DC_66A_n77A
DC_2A-14A-66A_n2A	DC_2A_n2A <sup>4</sup> DC_14A_n2A DC_66A_n2A
DC_2A-14A-66A-66A_n2A	DC_2A_n2A <sup>4</sup> DC_14A_n2A DC_66A_n2A
DC_2A-14A-66A_n66A	DC_2A_n66A DC_14A_n66A DC_66A_n66A <sup>4</sup>

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_2A-2A-14A-66A_n66A	DC_2A_n66A DC_14A_n66A DC_66A_n66A <sup>4</sup>
DC_2A-66A_n5A-n77A	DC_2A_n5A DC_2A_n77A DC_66A_n5A DC_66A_n77A
DC_2A-66A-(n)71AA	DC_2A_n71A DC_66A_n71A DC_(n)71AA
DC_3A-7A-20A_n8A	DC_3A_n8A DC_7A_n8A DC_20A_n8A
DC_3A-7A-20A_n28A <sup>3,7,8</sup>	DC_3A_n28A DC_7A_n28A DC_20A_n28A
DC_3A-7A-20A_n78A <sup>2</sup>	DC_3A_n78A DC_7A_n78A DC_20A_n78A
DC_3A-7A-28A_n78A <sup>2</sup>	DC_3A_n78A DC_7A_n78A DC_28A_n78A
DC_3A-7A_n28A-n78A <sup>2</sup>	DC_3A_n28A DC_3A_n78A DC_7A_n28A DC_7A_n78A
DC_3A-19A-21A_n78A <sup>2</sup> DC_3A-19A-21A_n78C <sup>2</sup>	DC_3A_n78A DC_19A_n78A DC_21A_n78A
DC_3A-19A-21A_n79A <sup>2</sup> DC_3A-19A-21A_n79C <sup>2</sup>	DC_3A_n79A DC_19A_n79A DC_21A_n79A
DC_3A-19A-42A_n77A <sup>6,7</sup> DC_3A-19A-42C_n77A <sup>6,7</sup>	DC_3A_n77A DC_19A_n77A
DC_3A-19A-42A_n78A <sup>6,7</sup> DC_3A-19A-42A_n78C <sup>6,7</sup> DC_3A-19A-42C_n78A <sup>6,7</sup> DC_3A-19A-42C_n78C <sup>6,7</sup>	DC_3A_n78A DC_19A_n78A
DC_3A-19A-42A_n79A <sup>2</sup> DC_3A-19A-42A_n79C <sup>2</sup> DC_3A-19A-42C_n79A <sup>2</sup> DC_3A-19A-42C_n79C <sup>2</sup>	DC_3A_n79A DC_19A_n79A
DC_3A-20A_n28A-n78A <sup>2,3,7,8</sup>	DC_3A_n28A DC_3A_n78A DC_20A_n28A DC_20A_n78A
DC_3A-21A-42A_n77A <sup>6,7</sup> DC_3A-21A-42C_n77A <sup>6,7</sup>	DC_3A_n77A DC_21A_n77A
DC_3A-21A-42A_n78A <sup>6,7</sup> DC_3A-21A-42A_n78C <sup>6,7</sup> DC_3A-21A-42C_n78A <sup>6,7</sup> DC_3A-21A-42C_n78C <sup>6,7</sup>	DC_3A_n78A DC_21A_n78A
DC_3A-21A-42A_n79A DC_3A-21A-42A_n79C DC_3A-21A-42C_n79A DC_3A-21A-42C_n79C	DC_3A_n79A DC_21A_n79A
DC_7A-20A_n28A-n78A <sup>2,3,7,8</sup>	DC_7A_n28A DC_7A_n78A DC_20A_n28A DC_20A_n78A

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_13A-66A_n2A-n77A	DC_13A_n2A DC_13A_n77A DC_66A_n2A DC_66A_n77A
DC_19A-21A-42A_n77A <sup>6,7</sup> DC_19A-21A-42C_n77A <sup>6,7</sup>	DC_19A_n77A DC_21A_n77A
DC_19A-21A-42A_n78A <sup>6,7</sup> DC_19A-21A-42A_n78C <sup>6,7</sup> DC_19A-21A-42C_n78A <sup>6,7</sup> DC_19A-21A-42C_n78C <sup>6,7</sup>	DC_19A_n78A DC_21A_n78A
DC_19A-21A-42A_n79A DC_19A-21A-42A_n79C DC_19A-21A-42C_n79A DC_19A-21A-42C_n79C	DC_19A_n79A DC_21A_n79A

- NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.
- NOTE 2: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability
- NOTE 3: The frequency range in band n28 is restricted for this band combination to 703-733 MHz for the UL and 758-788 MHz for the DL.
- NOTE 4: Only single switched UL is supported.
- NOTE 5: UL carrier shall be supported in Band 2 or band 66 only. Power imbalance between downlink carriers on Band 7 and Band 38 is assumed to be within 6dB.
- NOTE 6: For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, the minimum requirements for intra-band non-contiguous EN-DC apply for the Band 42 and Band n77/n78 combination. For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, when UE capability interBandContiguousMRDC is indicated, the minimum requirements for intra-band-contiguous EN-DC also should be met in addtion to intra-band non-contiguous EN-DC.
- NOTE 7: For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, the minimum requirements for inter-band EN-DC apply when the maximum power spectral density imbalance between downlink carriers contained in overlapping or partially overlapping DL bands is within 6 dB.
- NOTE 8: For UEs not indicating *interBandMRDC-WithOverlapDL-Bands-r16*, the minimum requirements apply for synchronized DL carriers with a maximum receive time difference ≤ 3 usec between overlapping or partially overlapping DL bands contained in different cell groups.

5.5B.4.4 Inter-band EN-DC configurations within FR1 (five bands)

Table 5.5B.4.4-1: Inter-band EN-DC configurations within FR1 (five bands)

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-3A-7A-20A_n28A <sup>3,6,7</sup>	DC_1A_n28A DC_3A_n28A DC_7A_n28A DC_20A_n28A
DC_1A-3A-7A-20A_n78A <sup>2</sup>	DC_1A_n78A DC_3A_n78A DC_7A_n78A DC_20A_n78A
DC_1A-3A-7A_n28A-n78A <sup>2</sup>	DC_1A_n28A DC_1A_n78A DC_3A_n28A DC_3A_n78A DC_7A_n28A DC_7A_n78A
DC_1A-3A-7A-28A_n78A	DC_1A_n78A DC_3A_n78A DC_7A_n78A DC_28A_n78A
DC_1A-3A-19A-42A_n78A <sup>5,6</sup> DC_1A-3A-19A-42C_n78A <sup>5,6</sup>	DC_1A_n78A DC_3A_n78A DC_19A_n78A
DC_1A-3A-19A-42A_n79A DC_1A-3A-19A-42C_n79A	DC_1A_n79A DC_3A_n79A DC_19A_n79A
DC_1A-3A-20A_n28A-n78A <sup>2,3,6,7</sup>	DC_1A_n28A DC_1A_n78A DC_3A_n28A DC_3A_n78A DC_20A_n28A DC_20A_n78A
DC_1A-3A-21A-42A_n78A <sup>5,6</sup> DC_1A-3A-21A-42C_n78A <sup>5,6</sup>	DC_1A_n78A DC_3A_n78A DC_21A_n78A
DC_1A-3A-21A-42A_n79A DC_1A-3A-21A-42C_n79A	DC_1A_n79A DC_3A_n79A DC_21A_n79A
DC_1A-7A-20A_n28A-n78A <sup>2,3,6,7</sup>	DC_1A_n28A DC_1A_n78A DC_7A_n28A DC_7A_n78A DC_20A_n28A DC_20A_n78A
DC_1A-19A-21A-42A_n78A <sup>5,6</sup> DC_1A-19A-21A-42A_n78C <sup>5,6</sup> DC_1A-19A-21A-42C_n78A <sup>5,6</sup> DC_1A-19A-21A-42C_n78C <sup>5,6</sup>	DC_1A_n78A DC_19A_n78A DC_21A_n78A
DC_1A-19A-21A-42A_n79A DC_1A-19A-21A-42A_n79C DC_1A-19A-21A-42C_n79A DC_1A-19A-21A-42C_n79C	DC_1A_n79A DC_19A_n79A DC_21A_n79A
DC_3A-7A-20A_n28A-n78A <sup>2,3,6,7</sup>	DC_3A_n28A DC_3A_n78A DC_7A_n28A DC_7A_n78A DC_20A_n28A DC_20A_n78A
DC_3A-19A-21A-42A_n78A <sup>5,6</sup> DC_3A-19A-21A-42C_n78A <sup>5,6</sup>	DC_3A_n78A DC_19A_n78A DC_21A_n78A
DC_3A-19A-21A-42A_n79A <sup>5,6</sup> DC_3A-19A-21A-42C_n79A <sup>5,6</sup>	DC_3A_n79A DC_19A_n79A DC_21A_n79A

	EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
NOTE 1:	Uplink EN-DC configurations are the configurations supported by the present release of specifications.	
NOTE 2:	Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability	
NOTE 3:	The frequency range in band n28 is restricted for this band combination to 703-733 MHz for the UL and 758-788 MHz for the DL	
NOTE 4:	E 4: Reserved.	
	5: For UEs not indicating <i>interBandMRDC-WithOverlapDL-Bands-r16</i> , the minimum requirements for intra-band non-contiguous EN-DC apply for the Band 42 and Band n77/n78 combination. For UEs not indicating <i>interBandMRDC-WithOverlapDL-Bands-r16</i> , when UE capability <i>interBandContiguousMRDC</i> is indicated, the minimum requirements for intra-band-contiguous EN-DC also should be met in addtion to intra-band non-contiguous EN-DC.	
NOTE 6:	requirements for inter-band EN-DC app	C-WithOverlapDL-Bands-r16, the minimum oly when the maximum power spectral density contained in overlapping or partially overlapping
NOTE 7:	requirements apply for synchronized D	C-WithOverlapDL-Bands-r16, the minimum L carriers with a maximum receive time ng or partially overlapping DL bands contained in

# 5.5B.4.5 Inter-band EN-DC configurations within FR1 (six bands)

Table 5.5B.4.5-1: Inter-band EN-DC configurations within FR1 (six bands)

	EN-DC configuration	Uplink EN-DC configuration (NOTE 1)	
DC	_1A-3A-7A-20A_n28A-n78A <sup>2,3,5,6</sup>	DC_1A_n28A DC_1A_n78A DC_3A_n28A DC_3A_n78A DC_7A_n28A DC_7A_n78A DC_20A_n28A DC_20A_n28A	
NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.			
NOTE 2:	· ·		
NOTE 3:	1 ,		
NOTE 4:	OTE 4: Reserved		
NOTE 5: For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, the minimum requirements for inter-band EN-DC apply when the maximum power spectral density imbalance between downlink carriers contained in overlapping or partially overlapping DL bands is within 6 dB.			
NOTE 6:	NOTE 6: For UEs not indicating interBandMRDC-WithOverlapDL-Bands-r16, the minimum requirements apply for synchronized DL carriers with a maximum receive time difference ≤ 3 usec between overlapping or partially overlapping DL bands contained in different cell groups.		

### 5.5B.4a Inter-band NE-DC within FR1

### 5.5B.4a.1 Inter-band NE-DC configurations within FR1 (two bands)

Table 5.5B.4a.1-1: Inter-band NE-DC configurations within FR1 (two bands)

NE-DC configuration	Uplink NE-DC configuration (NOTE 1)	Single UL allowed
DC_n28A_3A DC_n28A_3C	DC_n28A_3A	No
DC_n28A_39A DC_n28A_39C	DC_n28A_39A	No
NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of		

NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.

## 5.5B.5 Inter-band EN-DC including FR2

Supported channel bandwidths for E-UTRA operating bands and CA configurations are defined in TS 36.521-1 [10] and for NR operating bands and CA configurations in TS 38.521-1 [8], TS 38.521-2 [9] and present document.

## 5.5B.5.1 Inter-band EN-DC configurations including FR2 (two bands)

Table 5.5B.5.1-1: Inter-band EN-DC configurations including FR2 (two bands)

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A_n257A	DC_1A_n257A
DC_2A_n257A	DC_2A_n257A
DC_2A_n257(2A)	DC_2A_n257A
DC_2A_n260A DC_2A_n260G DC_2A_n260H DC_2A_n260I DC_2A_n260J DC_2A_n260K DC_2A_n260L DC_2A_n260M DC_2C_n260A	DC_2A_n260A DC_2A_n260G DC_2A_n260H
DC_2A_n261A DC_2A_n261G DC_2A_n261H DC_2A_n261I DC_2A_n261J DC_2A_n261M	DC_2A_n261G DC_2A_n261H DC_2A_n261I
DC_2A_n261(2A) DC_2A_n261(3A)	DC_2A_n261A
DC_2A_n261(2G) DC_2A_n261(2H)	DC_2A_n261A DC_2A_n261G DC_2A_n261H
DC_2A_n261(A-G) DC_2A_n261(A-2G) DC_2A_n261(A-H) DC_2A_n261(A-I) DC_2A_n261(G-H) DC_2A_n261(G-I) DC_2A_n261(H-I) DC_2A_n261(2A-G) DC_2A_n261(2A-I)	DC_2A_n261A DC_2A_n261G DC_2A_n261H DC_2A_n261I
DC_2A_n261(A-G-H) DC_2A_n261(A-G-I)	DC_2A_n261A DC_2A_n261G DC_2A_n261H DC_2A_n261I
DC_3A_n257G DC_3A_n257H DC_3A_n257I	DC_3A_n257G DC_3A_n257H DC_3A_n257I

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_5A_n260A	DC_5A_n260A DC_5A_n260G DC_5A_n260H DC_5A_n260O DC_5A_n260P DC_5A_n260Q
DC_5A_n261A DC_5A_n261G DC_5A_n261H DC_5A_n261I DC_5A_n261J DC_5A_n261M	DC_5A_n261A DC_5A_n261G DC_5A_n261H DC_5A_n261I
DC_5A_n261(2A) DC_5A_n261(3A) DC_5A_n261(4A)	DC_5A_n261A DC_5A_n261G DC_5A_n261H DC_5A_n261I
DC_8A_n257A DC_8A_n257D DC_8A_n257E DC_8A_n257F DC_8A_n257G DC_8A_n257H DC_8A_n257I DC_8A_n257J DC_8A_n257K DC_8A_n257L DC_8A_n257L DC_8A_n257M	DC_8A_n257A
DC_13A_n257A	DC_13A_n257A
DC_13A_n260A DC_13A_n260G DC_13A_n260H DC_13A_n260I DC_13A_n260J DC_13A_n260M	DC_13A_n260A DC_13A_n260G DC_13A_n260H DC_13A_n260O
DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I	DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I
DC_18A_n257A  DC_19A_n257A  DC_19A_n257D  DC_19A_n257G  DC_19A_n257H  DC_19A_n257I	DC_18A_n257A  DC_19A_n257A  DC_19A_n257G  DC_19A_n257H  DC_19A_n257I
DC_20A_n257A DC_21A_n257A DC_21A_n257G	DC_20A_n257A DC_21A_n257A DC_21A_n257G
DC_66A_n260A DC_66A_n260D DC_66A_n260E DC_66A_n260F DC_66A_n260G DC_66A_n260H DC_66A_n260I DC_66A_n260J DC_66A_n260K DC_66A_n260L DC_66A_n260L DC_66A_n260M DC_66A_n260M DC_66A_n260O	DC_66A_n260A DC_66A_n260G DC_66A_n260H DC_66A_n260O DC_66A_n260P DC_66A_n260Q

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_66A-66A_n260A DC_66A-66A_n260G DC_66A-66A_n260H DC_66A-66A_n260I DC_66A-66A_n260J DC_66A-66A_n260K DC_66A-66A_n260L DC_66A-66A_n260M	DC_66A_n260A DC_66A_n260G DC_66A_n260H DC_66A_n260I
DC_66A_n261G DC_66A_n261H DC_66A_n261I DC_66A_n261J DC_66A_n261K DC_66A_n261L DC_66A_n261M	DC_66A_n261A DC_66A_n261G DC_66A_n261H DC_66A_n261I
DC_66A_n261(2G) DC_66A_n261(2H)	DC_66A_n261A DC_66A_n261G DC_66A_n261H
DC_66A_n261(A-2G) DC_66A_n261(2A-G) DC_66A_n261(2A-H) DC_66A_n261(2A-I)	DC_66A_n261A DC_66A_n261G DC_66A_n261H DC_66A_n261I
DC_66A_n261(A-G-H) DC_66A_n261(A-G-I)	DC_66A_n261A DC_66A_n261G DC_66A_n261H DC_66A_n261I
DC_66A-66A_n260G DC_66A-66A_n260H DC_66A-66A_n260I DC_66A-66A_n260J DC_66A-66A_n260K DC_66A-66A_n260L DC_66A-66A_n260M	DC_66A_n261A DC_66A_n261G DC_66A_n261H DC_66A_n261I

NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.

NOTE 2: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability for all of the above combinations

5.5B.5.2 Inter-band EN-DC configurations including FR2 (three bands)

Table 5.5B.5.2-1: Inter-band EN-DC configurations including FR2 (three bands)

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-3A_n257A <sup>2</sup> DC_1A-3A_n257G DC_1A-3A_n257H DC_1A-3A_n257I	DC_1A_n257A DC_3A_n257A DC_3A_n257G DC_3A_n257H DC_3A_n257I
DC_1A-19A_n257A <sup>2</sup> DC_1A-19A_n257G DC_1A-19A_n257H DC_1A-19A_n257I	DC_1A_n257A DC_1A_n257G DC_1A_n257H DC_1A_n257I DC_19A_n257A
DC_1A-21A_n257A <sup>2</sup> DC_1A-21A_n257G DC_1A-21A_n257H DC_1A-21A_n257I	DC_1A_n257A DC_1A_n257G DC_1A_n257H DC_1A_n257I DC_21A_n257A DC_21A_n257G DC_21A_n257H DC_21A_n257H DC_21A_n257I
DC_1A-42A_n257A DC_1A-42A_n257G DC_1A-42A_n257H DC_1A-42A_n257I DC_1A-42C_n257A DC_1A-42D_n257A DC_1A-42D_n257G DC_1A-42D_n257H DC_1A-42D_n257I DC_1A-42E_n257A DC_1A-42E_n257A DC_1A-42E_n257G	DC_1A_n257A DC_1A_n257G DC_1A_n257H DC_1A_n257I DC_42A_n257A
DC_2A-5A_n257A <sup>2</sup>	DC_2A_n257A DC_5A_n257A
DC_2A-5A_n260A DC_2A-5A_n260G DC_2A-5A_n260H DC_2A-5A_n260I DC_2A-5A_n260J DC_2A-5A_n260K DC_2A-5A_n260L DC_2A-5A_n260M	DC_2A_n260A DC_5A_n260A
DC_2A-5A_n261A DC_2A-5A_n261G DC_2A-5A_n261H DC_2A-5A_n261I DC_2A-5A_n261J DC_2A-5A_n261K DC_2A-5A_n261L DC_2A-5A_n261M	DC_2A_n261A DC_5A_n261A DC_2A_n261G DC_5A_n261G DC_5A_n261H DC_5A_n261H DC_2A_n261H DC_2A_n261I DC_5A_n261I
DC_2A-13A_n260A <sup>2</sup>	DC_2A_n260A DC_13A_n260A
DC_2A-13A_n261A DC_2A-13A_n261G DC_2A-13A_n261H DC_2A-13A_n261I DC_2A-13A_n261J DC_2A-13A_n261K DC_2A-13A_n261L DC_2A-13A_n261M	DC_2A_n261A DC_13A_n261A DC_2A_n261G DC_13A_n261G DC_2A_n261H DC_13A_n261H

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_2A-13A_n261(2A) DC_2A-13A_n261(2G) DC_2A-13A_n261(2H) DC_2A-13A_n261(3A)	DC_2A_n261A DC_13A_n261A DC_2A_n261G DC_13A_n261G DC_2A_n261H DC_13A_n261H
DC_2A-13A_n261(A-G) DC_2A-13A_n261(A-2G) DC_2A-13A_n261(A-H) DC_2A-13A_n261(A-I) DC_2A-13A_n261(G-I) DC_2A-13A_n261(G-I) DC_2A-13A_n261(H-I) DC_2A-13A_n261(2A-G) DC_2A-13A_n261(2A-H) DC_2A-13A_n261(2A-I)	DC_2A_n261A DC_13A_n261A DC_2A_n261G DC_13A_n261G DC_2A_n261H DC_13A_n261H
DC_2A-13A_n261(A-G-H) DC_2A-13A_n261(A-G-I)	DC_2A_n261A DC_13A_n261A DC_2A_n261G DC_13A_n261G DC_2A_n261H DC_13A_n261H
DC_2A-14A_n260A DC_2A-14A_n260G DC_2A-14A_n260H DC_2A-14A_n260I	DC_2A_n260A DC_2A_n260G DC_2A_n260H DC_2A_n260I DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I
DC_2A-2A-14A_n260A DC_2A-2A-14A_n260G DC_2A-2A-14A_n260H DC_2A-2A-14A_n260I	DC_2A_n260A DC_2A_n260G DC_2A_n260H DC_2A_n260I DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I
DC_2A-30A_n260A DC_2A-30A_n260G DC_2A-30A_n260H DC_2A-30A_n260I DC_2A-30A_n260J DC_2A-30A_n260K DC_2A-30A_n260L DC_2A-30A_n260M	DC_2A_n260A DC_30A_n260A
DC_2A-66A_n257A <sup>2</sup>	DC_2A_n257A DC_66A_n257A
DC_2A-66A_n260A DC_2A-66A_n260G DC_2A-66A_n260H DC_2A-66A_n260I DC_2A-66A_n260J DC_2A-66A_n260K DC_2A-66A_n260L DC_2A-66A_n260M	DC_2A_n260A DC_66A_n260A DC_2A_n260G DC_66A_n260G DC_2A_n260H DC_66A_n260H DC_2A_n260I DC_66A_n260I
DC_3A-19A_n257A <sup>2</sup> DC_3A-19A_n257D <sup>2</sup> DC_3A-19A_n257G DC_3A-19A_n257H DC_3A-19A_n257I	DC_3A_n257A DC_3A_n257D DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_19A_n257A DC_19A_n257D

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_3A-21A_n257A <sup>2</sup> DC_3A-21A_n257D <sup>2</sup> DC_3A-21A_n257G DC_3A-21A_n257H DC_3A-21A_n257I	DC_3A_n257A DC_3A_n257D DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_21A_n257A DC_21A_n257D
DC_3A-42A_n257A² DC_3A-42A_n257D² DC_3A-42A_n257G DC_3A-42A_n257H DC_3A-42A_n257I DC_3A-42C_n257A² DC_3A-42C_n257D² DC_3A-42C_n257G DC_3A-42C_n257H DC_3A-42C_n257I DC_3A-42C_n257I DC_3A-42D_n257A² DC_3A-42D_n257G DC_3A-42D_n257G DC_3A-42D_n257H DC_3A-42D_n257H DC_3A-42D_n257I DC_3A-42D_n257H DC_3A-42D_n257I DC_3A-42D_n257I DC_3A-42D_n257I DC_3A-42D_n257I DC_3A-42E_n257A² DC_3A-42E_n257G DC_3A-42E_n257G	DC_3A_n257A DC_3A_n257D DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_42A_n257A DC_42A_n257D
DC_5A-7A_n257A <sup>2</sup>	DC_5A_n257A DC_7A_n257A
DC_5A-30A_n260A DC_5A-30A_n260G DC_5A-30A_n260H DC_5A-30A_n260I DC_5A-30A_n260J DC_5A-30A_n260K DC_5A-30A_n260L DC_5A-30A_n260M	DC_5A_n260A DC_30A_n260A
DC_5A-66A_n257A	DC_5A_n257A DC_66A_n257A
DC_5A-66A_n260A DC_5A-66A_n260G DC_5A-66A_n260H DC_5A-66A_n260I DC_5A-66A_n260J DC_5A-66A_n260K DC_5A-66A_n260L DC_5A-66A_n260M	DC_5A_n260A DC_66A_n260A
DC_12A-30A_n260A DC_12A-30A_n260G DC_12A-30A_n260H DC_12A-30A_n260I DC_12A-30A_n260J DC_12A-30A_n260K DC_12A-30A_n260L DC_12A-30A_n260M	DC_12A_n260A DC_30A_n260A
DC_12A-66A_n260A DC_12A-66A_n260G DC_12A-66A_n260H DC_12A-66A_n260I DC_12A-66A_n260J DC_12A-66A_n260K DC_12A-66A_n260L DC_12A-66A_n260M	DC_12A_n260A DC_66A_n260A
DC_13A-66A_n260A <sup>2</sup>	DC_13A_n260A DC_66A_n260A

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_14A-30A_n260A DC_14A-30A_n260G DC_14A-30A_n260H DC_14A-30A_n260I	DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I DC_30A_n260A DC_30A_n260G DC_30A_n260H DC_30A_n260I
DC_14A-66A_n260A DC_14A-66A_n260G DC_14A-66A_n260H DC_14A-66A_n260I	DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I DC_66A_n260A DC_66A_n260G DC_66A_n260H DC_66A_n260H DC_66A_n260I
DC_14A-66A-66A_n260A DC_14A-66A-66A_n260G DC_14A-66A-66A_n260H DC_14A-66A-66A_n260I	DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I DC_66A_n260A DC_66A_n260G DC_66A_n260H DC_66A_n260H
DC_19A-21A_n257A <sup>2</sup> DC_19A-21A_n257D <sup>2</sup> DC_19A-21A_n257G DC_19A-21A_n257H DC_19A-21A_n257I	DC_19A_n257A DC_19A_n257D DC_21A_n257A DC_21A_n257D DC_21A_n257G
DC_19A-42A_n257A <sup>2</sup> DC_19A-42A_n257D <sup>2</sup> DC_19A-42A_n257G <sup>2</sup> DC_19A-42A_n257H <sup>2</sup> DC_19A-42A_n257I <sup>2</sup> DC_19A-42C_n257A <sup>2</sup> DC_19A-42C_n257G <sup>2</sup> DC_19A-42C_n257H <sup>2</sup> DC_19A-42C_n257H <sup>2</sup>	DC_19A_n257A DC_19A_n257D DC_19A_n257G DC_19A_n257H DC_19A_n257I DC_42A_n257A DC_42A_n257D DC_42A_n257G DC_42A_n257G DC_42A_n257H DC_42A_n257H
DC_21A-42A_n257A <sup>2</sup> DC_21A-42A_n257D <sup>2</sup> DC_21A-42A_n257G DC_21A-42A_n257H DC_21A-42A_n257I DC_21A-42C_n257A <sup>2</sup> DC_21A-42C_n257G DC_21A-42C_n257H	DC_21A_n257A DC_21A_n257D DC_21A_n257G DC_21A_n257H DC_21A_n257I DC_42A_n257A DC_42A_n257D
DC_28A-42A_n257A <sup>2</sup>	DC_28A_n257A DC_42A_n257A
DC_30A-66A_n260A DC_30A-66A_n260G DC_30A-66A_n260H DC_30A-66A_n260I DC_30A-66A_n260J DC_30A-66A_n260K DC_30A-66A_n260L DC_30A-66A_n260M	DC_30A_n260A DC_66A_n260A
DC_41A-42A_n257A	DC_41A_n257A DC_42A_n257A

NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.

NOTE 2: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability for all of the above combinations.

## 5.5B.5.3 Inter-band EN-DC configurations including FR2 (four bands)

Table 5.5B.5.3-1: Inter-band EN-DC configurations including FR2 (four bands)

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-3A-19A_n257A <sup>2</sup> DC_1A-3A-19A_n257G DC_1A-3A-19A_n257H DC_1A-3A-19A_n257I	DC_1A_n257A DC_3A_n257A DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_19A_n257A
DC_1A-3A-21A_n257A <sup>2</sup> DC_1A-3A-21A_n257G DC_1A-3A-21A_n257H DC_1A-3A-21A_n257I	DC_1A_n257A DC_3A_n257A DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_21A_n257A
DC_1A-3A-42A_n257A DC_1A-3A-42A_n257G DC_1A-3A-42A_n257H DC_1A-3A-42A_n257I DC_1A-3A-42C_n257A DC_1A-3A-42C_n257G DC_1A-3A-42C_n257H DC_1A-3A-42C_n257I DC_1A-3A-42C_n257I DC_1A-3A-42D_n257H DC_1A-3A-42D_n257H	DC_1A_n257A DC_1A_n257G DC_1A_n257H DC_1A_n257H DC_3A_n257I DC_3A_n257A DC_3A_n257G DC_3A_n257H DC_3A_n257H
DC_1A-19A-21A_n257G DC_1A-19A-21A_n257H DC_1A-19A-21A_n257I	DC_1A_n257G DC_1A_n257H DC_1A_n257I DC_21A_n257G DC_21A_n257H DC_21A_n257I

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-19A-42A_n257A DC_1A-19A-42A_n257G DC_1A-19A-42A_n257H DC_1A-19A-42A_n257I DC_1A-19A-42C_n257A DC_1A-19A-42C_n257G DC_1A-19A-42C_n257H DC_1A-19A-42C_n257I	DC_1A_n257A DC_1A_n257G DC_1A_n257H DC_1A_n257I DC_19A_n257A DC_42A_n257A
DC_1A-21A-42A_n257A DC_1A-21A-42A_n257G DC_1A-21A-42A_n257H DC_1A-21A-42A_n257I DC_1A-21A-42C_n257A DC_1A-21A-42C_n257G DC_1A-21A-42C_n257H DC_1A-21A-42C_n257I	DC_1A_n257A DC_1A_n257G DC_1A_n257H DC_1A_n257I DC_21A_n257A DC_21A_n257G DC_21A_n257H DC_21A_n257I DC_21A_n257I DC_42A_n257A DC_42A_n257D
DC_2A-14A-30A_n260A DC_2A-14A-30A_n260G DC_2A-14A-30A_n260H DC_2A-14A-30A_n260I	DC_2A_n260A DC_2A_n260G DC_2A_n260H DC_2A_n260I DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I DC_30A_n260A DC_30A_n260G
DC_2A-14A-66A_n260A DC_2A-14A-66A_n260G DC_2A-14A-66A_n260H DC_2A-14A-66A_n260I	DC_2A_n260A DC_2A_n260G DC_2A_n260H DC_2A_n260I DC_14A_n260A DC_14A_n260G DC_14A_n260I DC_14A_n260I DC_66A_n260G DC_66A_n260I DC_66A_n260I
DC_2A-14A-66A-66A_n260A DC_2A-14A-66A-66A_n260G DC_2A-14A-66A-66A_n260H DC_2A-14A-66A-66A_n260I	DC_2A_n260A DC_2A_n260G DC_2A_n260H DC_2A_n260I DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I DC_66A_n260A DC_66A_n260I DC_66A_n260I
DC_3A-19A-21A_n257A <sup>2</sup>	DC_3A_n257A DC_19A_n257A DC_21A_n257A

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_3A-19A-42A_n257A DC_3A-19A-42A_n257G DC_3A-19A-42A_n257H DC_3A-19A-42A_n257I DC_3A-19A-42C_n257A DC_3A-19A-42C_n257D DC_3A-19A-42C_n257G DC_3A-19A-42C_n257H DC_3A-19A-42C_n257I	DC_3A_n257A DC_3A_n257D DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_19A_n257A DC_19A_n257D DC_19A_n257G DC_19A_n257H DC_19A_n257H DC_19A_n257I DC_42A_n257D DC_42A_n257D DC_42A_n257H DC_42A_n257H
DC_3A-21A-42A_n257A DC_3A-21A-42A_n257G DC_3A-21A-42A_n257H DC_3A-21A-42A_n257I DC_3A-21A-42C_n257A DC_3A-21A-42C_n257D DC_3A-21A-42C_n257G DC_3A-21A-42C_n257H DC_3A-21A-42C_n257I	DC_3A_n257A DC_3A_n257D DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_21A_n257A DC_21A_n257D DC_21A_n257G DC_21A_n257H DC_21A_n257H DC_21A_n257I DC_42A_n257D DC_42A_n257D DC_42A_n257D DC_42A_n257D DC_42A_n257H DC_42A_n257H DC_42A_n257H
DC_14A-30A-66A_n260A DC_14A-30A-66A_n260G DC_14A-30A-66A_n260H DC_14A-30A-66A_n260I	DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I DC_30A_n260A DC_30A_n260G DC_30A_n260H DC_30A_n260I DC_66A_n260A DC_66A_n260H DC_66A_n260I
DC_14A-30A-66A-66A_n260A DC_14A-30A-66A-66A_n260G DC_14A-30A-66A-66A_n260H DC_14A-30A-66A-66A_n260I	DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I DC_30A_n260A DC_30A_n260G DC_30A_n260H DC_30A_n260I DC_66A_n260A DC_66A_n260G

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
	DC_19A_n257A
	DC_19A_n257D
	DC_19A_n257G
DC_19A-21A-42A_n257A <sup>2</sup>	DC_19A_n257H
DC_19A-21A-42A_n257G <sup>2</sup>	DC_19A_n257I
DC_19A-21A-42A_n257H <sup>2</sup>	DC_21A_n257A
DC_19A-21A-42A_n257l <sup>2</sup>	DC_21A_n257D
DC_19A-21A-42C_n257A <sup>2</sup>	DC_21A_n257G
DC_19A-21A-42C_n257D <sup>2</sup>	DC_21A_n257H
DC_19A-21A-42C_n257G <sup>2</sup>	DC_21A_n257I
DC_19A-21A-42C_n257H <sup>2</sup>	DC_42A_n257A
DC_19A-21A-42C_n257l <sup>2</sup>	DC_42A_n257D
	DC_42A_n257G
	DC_42A_n257H
	DC_42A_n257I

NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of

specifications.

NOTE 2: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability for all of the above combinations.

# 5.5B.5.4 Inter-band EN-DC configurations including FR2 (five bands)

Table 5.5B.5.4-1: Inter-band EN-DC configurations including FR2 (five bands)

EN-DC configuration	Uplink EN-DC configuration (NOTE 1)
DC_1A-3A-19A-42A_n257A DC_1A-3A-19A-42A_n257G DC_1A-3A-19A-42A_n257H DC_1A-3A-19A-42A_n257I DC_1A-3A-19A-42C_n257A DC_1A-3A-19A-42C_n257G DC_1A-3A-19A-42C_n257H DC_1A-3A-19A-42C_n257I	DC_1A_n257A DC_3A_n257A DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_19A_n257A DC_42A_n257A
DC_1A-3A-21A-42A_n257A DC_1A-3A-21A-42C_n257A DC_1A-3A-21A-42C_n257G DC_1A-3A-21A-42C_n257H DC_1A-3A-21A-42C_n257I	DC_1A_n257A DC_3A_n257A DC_3A_n257G DC_3A_n257H DC_3A_n257I DC_3A_n257J DC_21A_n257A DC_42A_n257A
DC_1A-19A-21A-42A_n257A DC_1A-19A-21A-42A_n257G DC_1A-19A-21A-42A_n257H DC_1A-19A-21A-42A_n257I DC_1A-19A-21A-42C_n257A DC_1A-19A-21A-42C_n257G DC_1A-19A-21A-42C_n257H DC_1A-19A-21A-42C_n257I	DC_1A_n257A DC_1A_n257G DC_1A_n257H DC_1A_n257I DC_19A_n257A DC_21A_n257A DC_21A_n257G DC_21A_n257H DC_21A_n257I DC_21A_n257I
DC_2A-14A-30A-66A_n260A DC_2A-14A-30A-66A_n260G DC_2A-14A-30A-66A_n260H DC_2A-14A-30A-66A_n260I	DC_2A_n260A DC_2A_n260G DC_2A_n260H DC_2A_n260I DC_14A_n260A DC_14A_n260G DC_14A_n260H DC_14A_n260I DC_30A_n260A DC_30A_n260G DC_30A_n260H DC_30A_n260H DC_30A_n260I DC_66A_n260A

NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.

## 5.5B.5.5 Void

# 5.5B.6 Inter-band EN-DC including FR1 and FR2

Supported channel bandwidths for E-UTRA operating bands and CA configurations are defined in TS 36.521-1 [10] and for NR operating bands and CA configurations in TS 38.521-1 [8], TS 38.521-2 [9] and present document.

5.5B.6.1 Void

5.5B.6.2 Inter-band EN-DC configurations including FR1 and FR2 (three bands)

Table 5.5B.6.2-1: Inter-band EN-DC configurations including FR1 and FR2 (three bands)

Editor's note: No Inter-band EN-DC configurations including FR1 and FR2 (three bands) specified due to the testability issues that combined testing of NR FR1 in conducted mode and NR FR2 in radiated mode.

5.5B.6.3 Inter-band EN-DC configurations including FR1 and FR2 (four bands)

Table 5.5B.6.3-1: Inter-band EN-DC configurations including FR1 and FR2 (four bands)

Editor's note: No Inter-band EN-DC configurations including FR1 and FR2 (four bands) specified due to the testability issues that combined testing of NR FR1 in conducted mode and NR FR2 in radiated mode.

5.5B.6.4 Inter-band EN-DC configurations including FR1 and FR2 (five bands)

Table 5.5B.6.4-1: Inter-band EN-DC configurations including FR1 and FR2 (five bands)

Editor's note: No Inter-band EN-DC configurations including FR1 and FR2 (five bands) specified due to the testability issues that combined testing of NR FR1 in conducted mode and NR FR2 in radiated mode.

5.5B.6.5 Inter-band EN-DC configurations including FR1 and FR2 (six bands)

Table 5.5B.6.5-1: Inter-band EN-DC configurations including FR1 and FR2 (six bands)

Editor's note: No Inter-band EN-DC configurations including FR1 and FR2 (six bands) specified due to the testability issues that combined testing of NR FR1 in conducted mode and NR FR2 in radiated mode.

#### 5.5B.7 Inter-band NR-DC between FR1 and FR2

Supported channel bandwidths for E-UTRA operating bands and CA configurations are defined in TS 36.521-1 [10] and for NR operating bands and CA configurations in TS 38.521-1 [8], TS 38.521-2 [9] and present document.

#### 5.5B.7.0 General

The configurations and bandwidth combination sets for the FR1-FR2 NR-DC combinations in the following sub-section are defined in the tables for FR1-FR2 carrier aggregation in section 5.5A.1.

# 5.5B.7.1 Inter-band NR-DC configurations between FR1 and FR2 (two bands)

Table 5.5B.7-1: Inter-band NR-DC configurations between FR1 and FR2 (two bands)

Downlink NR-DC configuration	Uplink NR-DC configuration
DC_n78A-n257A DC_n78A-n257G DC_n78A-n257H DC_n78A-n257I	DC_n78A-n257A
DC_n79A-n257A DC_n79A-n257D DC_n79A-n257E DC_n79A-n257F DC_n79A-n257F DC_n79A-n257H DC_n79A-n257I DC_n79A-n257J DC_n79A-n257K DC_n79A-n257L DC_n79A-n257L DC_n79A-n257M DC_n79C-n257A DC_n79C-n257D DC_n79C-n257E DC_n79C-n257F	DC_n79A-n257A

# 5.5E Configuration for V2X operation

# 5.5E.1 General

The operating bands and bandwidth classes are specified for V2X operation.

# 5.5E.2 Intra-band contiguous V2X operation in FR1

Table 5.5E.2-1: Intra-band contiguous V2X configurations

V2X configuration	SL transmission
V2X_(n)47AA	E-UTRA Band 47 or NR band n47
NOTE 1: Only single switched SL is supp	ported.

# 5.5E.3 Intra-band non-contiguous V2X operation in FR1

Table 5.5E.3-1: Intra-band non-contiguous V2X configurations

V2X configuration	SL transmission
V2X_47A_n47A	E-UTRA Band 47 or NR band n47
NOTE 1: Only single switched SL is so	upported.

# 5.5E.4 Inter-band V2X operation in FR1

## 5.5E.4.1 Inter-band V2X configurations within FR1 (two bands)

Table 5.5E.4.1-1: Inter-band V2X configurations

V2X configuration	V2X transmission configuration
V2X_20A_n38A	V2X_20A_n38A
V2X_n71A_47A	V2X_n71A_47A
NOTE 1: V2X transmission configura specifications.	tions are the configurations supported by the present release of

# 6 Transmitter characteristics

# 6.1 General

Editor's note: Test configurations/environments that require new spherical scan shall be included in test procedure clause and identifying such scenarios is currently FFS and owned by RAN5.

Unless otherwise stated the transmitter, characteristics are specified at the antenna connector(s) of the UE for the bands operating on frequency range 1 and over the air of the UE for the bands operating on frequency range 2. The requirements for frequency range 1 and frequency range 2 can be verified separately. For the carrier in frequency range 1, requirements can be verified with NR FR2 link disabled. For the carrier in frequency range 2, requirements can be verified in OTA mode with E-UTRA connecting to the network by OTA without calibration.

For NR FR2 Tx test cases the identified beam peak direction can be stored and reused for a device under test in various configurations/environments for the full duration of device testing as long as beam peak direction is the same.

Unless otherwise stated, requirements for NR transmitter written in TS 38.521-1 [8] and TS 38.521-2 [9] apply and are assumed anchor agnostic. Requirements are verified under conditions where anchor resources do not interfere NR operation. For Rel-15, unless otherwise stated, if UE indicates IE maxNumberSRS-Ports-PerResource = n2 in NR standalone operation mode, the said UE shall meet the NR requirements for either power class 2 or power class 3 in EN-DC within FR1 if UE indicates IE maxNumberSRS-Ports-PerResource = n1 for EN-DC on this NR band. For Rel-16 and forward, if UE indicates IE *powerClassNRPart-r16* as defined in TS 38.331 [18] in EN-DC, UE shall meet NR requirements according to this power class.

Unless otherwise stated, Channel Bandwidth shall be prioritized in the selecting of test points. Subcarrier spacing shall be selected after Test Channel Bandwidth is selected.

For conformance testing involving FR2 test cases in this specification, the UE under test shall be pre-configured with UL Tx diversity schemes disabled to account for single polarization System Simulator (SS) in the test environment. The UE under test may transmit with dual polarization.

Uplink RB allocations for NR FR1 carrier given in TS 38.521-1 [8] Table 6.1-1 are used throughout this clause, unless otherwise stated by the test case.

Uplink RB allocations for NR FR2 carrier given in TS 38.521-2 [9] Table 6.1-1 are used throughout this clause, unless otherwise stated by the test case.

Uplink RB allocations for E-UTRA carrier and E-UTRA intra-band contiguous CA (2CC) given in Table 6.1-1 and Table 6.1-2 respectively are used throughout this clause, unless otherwise stated by the test case.

Table 6.1-1: Common uplink configuration for E-UTRA carrier

	RB allocation				
Channel Bandwidth	Full_Allocation	Partial_Allocation	1RB_Left	1RB_Right	
1.4MHz	6@0	5@0	1@0	1@5	
3MHz	15@0	4@0	1@0	1@14	
5MHz	25@0	8@0	1@0	1@24	
10MHz	50@0	12@0	1@0	1@49	
15MHz	75@0	16@0	1@0	1@74	
20MHz	1Hz 100@0		1@0	1@99	
NOTE: Partial_Allocation corresponds to the test points with 0dB MPR <sub>single,E-UTRA</sub> for QPSK modulation type included in TS					

Table 6.1-2 Common uplink RB allocation for E-UTRA intra-band contiguous CA (2CC)

36.521-1 Table 6.2.2.4.1-1.

	PCC & SCC RB allocation					
Smallest Component Carrier Transmission Bandwidth	Partial_Allocation		1RB Left	<b>!</b>	1RB_Right	
	PCC	SCC	PCC	SCC	PCC	SCC
5MHz	P_8@0	S_0@0	P_1@0	S_0@0	P_1@RBmax	S_0@0
10MHz	P_12@0	S_0@0	P_1@0	S_0@0	P_1@RBmax	S_0@0
15MHz	P_16@0	S_0@0	P_1@0	S_0@0	P_1@RBmax	S_0@0
20MHz	P_18@0	S_0@0	P_1@0	S_0@0	P_1@RBmax	S_0@0
_	OTE: Partial_Allocation corresponds to the test points with 0dB MPR <sub>E-UTRA, CA</sub> for QPSK					

modulation type included in TS 36.521-1 Table 6.2.2.4.1-1.

#### Transmitter power 6.2

#### Transmitter power for CA without EN-DC 6.2A

#### 6.2A.1 UE maximum output power for CA

#### 6.2A.1.1 UE maximum output power for inter-band NR CA between FR 1 and FR 2 without EN-DC

#### 6.2A.1.1.1 Test purpose

Same test purpose as in clause 6.2.1 in TS 38.521-1 [8] for NR/5GC FR1 carrier(s) and clause 6.2.1 in TS 38.521-2 [9] for NR/5GC FR2 carrier(s).

#### 6.2A.1.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR/5GC FR1 conducted mode with NR/5GC FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for maximum output power apply and are tested in TS 38.521-1 [8] clauses 6.2 and 6.2A and TS 38.521-2 [9] clauses 6.2 and 6.2A.

# 6.2A.2 UE maximum output power reduction for CA

# 6.2A.2.1 UE maximum output power reduction for inter-band NR CA between FR 1 and FR 2 without EN-DC

#### 6.2A.2.1.1 Test purpose

Same test purpose as in clause 6.2.2 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.2.2 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.2A.2.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The SA requirements for additional spectrum emissions mask apply and are tested in TS 38.521-1 [8] clauses 6.2 and 6.2A and TS 38.521-2 [9] clauses 6.2 and 6.2A.

# 6.2A.3 UE additional maximum output power reduction for CA

# 6.2A.3.1 UE additional maximum output power reduction for inter-band NR CA between FR 1 and FR 2 without EN-DC

#### 6.2A.3.1.1 Test purpose

Same test purpose as in clause 6.2.3.1 in TS 38.521-1 [8] for NR FR1 carrier and clause 6.2.3.1 in TS 38.521-2 [9] for NR FR2 carrier.

#### 6.2A.3.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The single carrier requirements for Additional Maximum Output Power apply and are tested as part of clause 6.2.3 in TS 38.521-1 [8] for NR FR1 carrier and clause 6.2.3 in TS 38.521-2 [9] for NR FR2 carrier.

# 6.2A.4 Configured output power level for CA

# 6.2A.4.1 Configured output power level for inter-band NR CA between FR 1 and FR 2 without EN-DC

#### 6.2A.4.1.1 Test purpose

Same test purpose as in clause 6.2.4 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.2.4 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.2A.4.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for configured output power level apply and are tested in TS 38.521-1 [8] clauses 6.2 and 6.2A and TS 38.521-2 [9] clauses 6.2 and 6.2A.

# 6.2A.4.2 $\Delta T_{IB,c}$ for CA

## 6.2A.4.2.1 $\Delta T_{IB,c}$ for inter-band CA between FR 1 and FR 2

For the UE which supports inter-band NR CA configuration,  $\Delta T_{IB,c}$  in Table 6.2A.4.2.1-1 applies. Unless otherwise stated,  $\Delta T_{IB,c}$  is set to zero.

#### Table 6.2A.4.2.1-1: Void

# 6.2B Transmitter power for DC

# 6.2B.1 UE Maximum Output Power for DC

# 6.2B.1.1 UE Maximum Output Power for Intra-Band Contiguous EN-DC

#### Editor's note:

- For overlapping transmission there is no test point satisfying 0dB MPR according to RAN4 specification.

## 6.2B.1.1.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified nominal maximum output power and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

#### 6.2B.1.1.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC operation on FR1.

#### 6.2B.1.1.3 Minimum conformance requirements

The following UE Power Classes define the total maximum output power for any transmission bandwidth(s) of the CG(s) configured.

The maximum output power is measured as the total maximum output power across the UE antenna connector(s). The period of measurement shall be at least one sub frame.

Table 6.2B.1.1.3-1: Maximum output power for EN-DC (continuous sub-blocks)

Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
		23	+2/-3
26	+2/-3 <sup>1</sup>	23	+2/-3 <sup>1</sup>
	(dBm)	(dBm) (dB)	(dBm) (dB) (dBm) 23

NOTE 1: An uplink EN-DC configuration in which the band has NOTE 3 in Table 6.2.1-1 in TS 38.101-1 or NOTE 2 in Table 6.2.2-1 in TS 36.101 is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands are confined within F<sub>UL\_low</sub> and F<sub>UL\_low</sub> + 4 MHz or F<sub>UL\_high</sub> - 4 MHz and F<sub>UL\_low</sub>.

NOTE 2: Power Class 3 is the default power class unless otherwise stated.

If UE supports a different power class than the default UE power class for EN-DC band combination, and the supported power class enables higher maximum output power than that of the default power class:

- if the E-UTRA UL/DL configuration is 0 or 6; or
- if the E-UTRA UL/DL configuration is 1 and special subframe configuration is 0 or 5; or

- if the IE *p-maxUE-FR1-r15* as defined in TS 36.331 [17] is provided and set to the maximum output power of the default power class or lower;
  - apply all requirements for the default power class, and set the configured transmitted power as specified in clause 6.2B.4;
- else
  - apply all requirements for the supported power class, and set the configured transmitted power class as specified in subclause 6.2B.4;

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.1.

LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 6.2B.1.1.4 Test description

#### 6.2B.1.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2.All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2, and are shown in table 6.2B.1.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annex A, clause A.2.3 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A, clause A.2.2 for E-UTRA RMC for FDD, and TS 38.521-1 [8] Annex A, clause A.2 for NR RMC. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C, clause C.2 and in TS 38.521-1 [8] Annex C, clause C.2 for E-UTRA CG and NR CG respectively.

Table 6.2B.1.1.4.1-1: Test configuration table for Intra-Band Contiguous EN-DC

Initial Conditions						
Test Environme	nt as specified in	n Normal, TL/VL, TL/VH, TH/VL, TH/VH				
TS 38.508-1 [5] clause 4.1						
	ncies as specified in	Mid range				
	TS 38.508-1 [5] clause 4.3.1					
	E-UTRA Test Frequencies as specified in					
TS 36.508-1 [11						
Test EN-DC ban	ndwidth combination as	Highest N <sub>RB_agg</sub>				
specified in TS 3	38.508-1 [5] clause 4.3.1					
NR Test SCS as	s specified in Table 5.3.5-	5- Highest				
1 in TS 38.521-1	l [8]					
NR/E-UTRA Test Parameters						
Test ID	Downlink		<b>EN-DC Uplink (</b>	Configuration		
	Configuration	E-UTR	A Cell	NR	Cell	
		Modulation	RB	Modulation	RB	
			allocation		allocation	
			(NOTE 2)		(NOTE 1)	
1	N/A	QPSK	Partial_Alloc	N/A	N/A	
			ation			
2	N/A	QPSK	1RB_Left	N/A	N/A	
3	N/A	N/A	N/A	DFT-s-	Inner Full	
				OFDM		
		QPSK				
4	N/A	N/A N/A DFT-s- Inner_1RB_				
		OFDM LEFT				
QPSK						
	pecific configuration of each					
NOTE 2: The s	pecific configuration of each	ch RB allocation is	defined in Table	e 6.1-1 in curren	t specification.	

#### Table 6.2B.1.1.4.1-2: Void

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] clause A.3.1.1 for SS diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C, clause C.0 and TS 38.521-1 [8] Annex C, clause C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A, clause A.2 and TS 38.521-1 [8] Annex A, clause A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B, clause B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.1.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

## 6.2B.1.1.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 6.2B.1.1.4.1-1on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send, the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command for the UE to reach  $P_{UMAX}$  level.
- 3. For a UE supporting dynamic power sharing, measure the mean power over all component carriers. For a UE not supporting dynamic power sharing, measure the power of each component carrier individually. Ffor the tested EN-DC configuration, the requirements described in clause 6.2B.2.1.5 shall be met. The period of the measurement shall be at least the continuous duration of one active sub-frame (1ms). For TDD slots with transient periods are not under test.
- 4. For UEs supporting Power Class 2, repeat steps 1~3 on the applicable bands with message exception defined in Table 6.2B.1.1.4.3-5.

#### 6.2B.1.1.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

## Table 6.2B.1.1.4.3-0: PUSCH-Config

Derivation Path: TS 38.508-1 [6], Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED

# Table 6.2B.1.1.4.3-1: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106			
Information Element	Value/remark	Comment	Condition
p-NR-FR1	23		Power Class 3 UE
	26		Power Class 2 UE

## Table 6.2B.1.1.4.3-2: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	23		Power Class 3 UE
	26		Power Class 2 UE

## Table 6.2B.1.1.4.3-3: RRCConnectionReconfiguration: tdm-PatternConfig if operating on FDD band

Derivation Path: TS 36.508 [11], Table 4.6.1-8							
Information Element	Value/remark	Comment	Condition				
tdm-PatternConfig-r15 ::= CHOICE{			Test IDs 7-15				
setup :: = SEQUENCE {		Apply if operating on FDD band for a UE NOT indicating support of dynamicPowerSharing in the <i>UE-MRDC-Capability</i> IE according to TS 38.213 [x] clause 7.6.1					
subframeAssignment-r15	sa2						
harq-Offset-r15	0						
}							
}							

## Table 6.2B.1.1.4.3-4: SystemInfomationBlockType1: tdd-Config if operating on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

## Table 6.2B.1.1.4.3-5: RRCConnectionReconfiguration: p-MaxUE-FR1-r15 (step 4 in 6.2B.1.1.4.2)

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
nonCriticalExtension SEQUENCE {		RRCConnectionReconfig uration-v1530-IEs	
p-MaxUE-FR1-r15	23		Power Class 2 UE
}			

#### 6.2B.1.1.5 Test requirements

The maximum output power for the DC configuration, derived in step 3 shall be within the range prescribed by the DC UE Power Class and tolerance in Table 6.2B.1.1.5-1 for power class 3 UE and Table 6.2B.1.1.5-2 for power class 2 UE.

The corresponding requirements is specified in Table 6.2.2.5-1, 6.2.2\_1.5-1 in TS 36.521-1 [10] or Table 6.2.1.5-1, 6.2.1.5-2 in TS 38.521-1 [8].

The maximum output power for the DC configuration, derived in step 4 shall be within the range prescribed in Table 6.2B.1.1.5-1.

Table 6.2B.1.1.5-1: Maximum output power for EN-DC (continuous sub-blocks) for power class 3

DC configuration	Power class2	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_(n)71AA			23	+2+TT/-3-TT
DC_(n)41AA			23	+2+TT/-3 <sup>1</sup> +TT

NOTE 1: It is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands are confined within Fullow and Fullow + 4 MHz or Fullow - 4 MHz and Fullo

Table 6.2B.1.1.5-2: Maximum output power for EN-DC (continuous sub-blocks) for Power Class 2 for Rel-15

DC	Carrier	Power	Tolerance	Condition	Comment
configuration		class2	(dB)		
DC_(n)41AA	NR carrier	26	+2+TT/-31-TT	UE indicates PC2	UE meets power class 2
				on NR band	requirements
		23	+2+TT/-31-TT	UE indicates PC3	UE meets power class 3
				on NR band	requirements
	E-UTRA	26	+2+TT/-3 <sup>1</sup> -TT	UE indicates PC2	UE meets power class 2
	carrier			ON E-UTRA band	requirements
		23	+2+TT/-3 <sup>1</sup> -TT	UE indicates PC3	UE meets power class 3
				on E-UTRA band	requirements

NOTE 1: It is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands are confined within  $F_{UL\_low}$  and  $F_{UL\_low} + 4$  MHz or  $F_{UL\_high} - 4$  MHz and  $F_{UL\_high}$ .

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.1.1.5-3

Table 6.2B.1.1.5-2a: Maximum output power for EN-DC (continuous sub-blocks) for Power Class 2 for Rel-16 and forward

DC configuration	Carrier	Power class2	Tolerance (dB)	Condition	Comment
DC_(n)41AA	NR carrier	26	+2+TT/-3 <sup>1</sup> -TT	UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-3 <sup>1</sup> -TT	UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC3 by powerClassNRPart- r16) or UE reporting (PC3 by P <sub>PowerClass,NR</sub> )	UE meets power class 3 requirements
	E-UTRA carrier	26	+2+TT/-3 <sup>1</sup> -TT	UE indicates PC2 ON E-UTRA band	UE meets power class 2 requirements
	Garrier	23	+2+TT/-3 <sup>1</sup> -TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements

NOTE 1: It is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands are confined within Fullow and Fullow + 4 MHz or Fullhigh - 4 MHz and Fullhigh.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.1.1.5-3.

Table 6.2B.1.1.5-3: Test Tolerance (Maximum Output Power for Intra-Band Contiguous EN-DC)

	f ≤ 3.0GHz	3.0GHz < f ≤ 6GHz
ENBW ≤ 40MHz	0.7 dB	1.0 dB
40MHz < ENBW ≤ 100MHz	1.0 dB	1.0 dB

## 6.2B.1.2 UE Maximum Output Power for Intra-Band Non-Contiguous EN-DC

#### Editor's note:

- For overlapping transmission there is no test point satisfying 0dB MPR according to RAN4 specification.

#### 6.2B.1.2.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified nominal maximum output power and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

#### 6.2B.1.2.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC operation on FR1.

#### 6.2B.1.2.3 Minimum conformance requirements

The following UE Power Classes define the total maximum output power for any transmission bandwidth(s) of the CG(s) configured.

The maximum output power is measured as the total maximum output power across the UE antenna connector(s). The period of measurement shall be at least one sub frame.

Table 6.2B.1.2.3-1: Maximum output power for EN-DC (non-continuous sub-blocks)

DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_2A_n2A <sup>4</sup>			23	+2/-3
DC_41A_n41A	26	+2/-31	23	+2/-3 <sup>1</sup>
DC_66A_n66A4			23	+2/-3

NOTE 1: An uplink EN-DC configuration in which the band has NOTE 3 in Table 6.2.1-1 in TS 38.101-1 or NOTE 2 in Table 6.2.2-1 in TS 36.101 is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands are confined within Fullow and Fullow + 4 MHz or Fullow - 4 MHz and Fullow.

NOTE 2: Only single switched UL is supported in Rel-15.

NOTE 3: Power Class 3 is the default power class unless otherwise stated.

NOTE 4: Only single switched UL is supported.

If UE supports a different power class than the default UE power class for EN-DC band combination, and the supported power class enables higher maximum output power than that of the default power class:

- if the E-UTRA UL/DL configuration is 0 or 6; or
- if the E-UTRA UL/DL configuration is 1 and special subframe configuration is 0 or 5; or
- if the IE *p-maxUE-FR1-r15* as defined in TS 36.331 [17] is provided and set to the maximum output power of the default power class or lower:
  - apply all requirements for the default power class, and set the configured transmitted power as specified in subclause 6.2B.4;
- else

- apply all requirements for the supported power class, and set the configured transmitted power class as specified in subclause 6.2B.4.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.1.

LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

6.2B.1.2.4 Test description

6.2B.1.2.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in Table 5.3B.1.3-1, channel bandwidths and sub-carrier spacings for the NR cell are specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in Table 5.3B.1.3-1, and are shown in table 6.2B.1.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annex A, clause A.2.3 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A, clause A.2.2 for E-UTRA RMC for FDD, and TS 38.521-1 [8] Annex A, clause A.2 for NR RMC Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C, clause C.2 and in TS 38.521-1 [8] Annex C, clause C.2 for E-UTRA CG and NR CG respectively.

Table 6.2B.1.2.4.1-1: Test configuration table for intra-band non-contiguous EN-DC

Initial Conditions								
	nt as specified in	Normal, TL/VL,	Normal, TL/VL, TL/VH, TH/VL, TH/VH					
TS 38.508-1 [5]								
	ncies as specified in	Minimum Wgap	, Maximum Wgar	)				
TS 38.508-1 [5]								
	equencies as specified in							
TS 36.508-1 [11		111 1 4 1						
	ndwidth combination as	Highest N <sub>RB_agg</sub>						
	38.508-1 [5] clause 4.3.1	I l'ada a a t						
	s specified in Table 5.3.5-	Highest						
1 in TS 38.521-1		∣ E-UTRA Test Par	amotoro					
Test ID	Downlink	-UIKA TESLPAT	EN-DC Uplink (	Configuration				
Test ID	Configuration	E-UTR			Cell			
	Comiguration	Modulation	RB	Modulation	RB			
		Modulation	allocation	Modulation	allocation			
			(NOTE 2)		(NOTE 1)			
			(110122)		(1.012.1)			
1	N/A	QPSK	Partial Alloc	N/A	N/A			
		·	ation					
2	N/A	QPSK	1RB_Left	N/A	N/A			
3	N/A	N/A	N/A	DFT-s-	Inner Full			
				OFDM				
				QPSK				
4	N/A	N/A	N/A	DFT-s-	Inner_1RB_			
		OFDM LEFT						
		<u> </u>	L	QPSK				
	pecific configuration of each							
NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1-1 in current specification.								

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] A.3.1.1 for SS diagram and A.3.2.1 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.

- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.2.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

#### 6.2B.1.2.4.2 Test procedure

- 1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 6.2B.1.2.4.1-1on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command for the UE to reach  $P_{UMAX}$  level for Power class 3.
- 3. Measure the mean transmitted power over all EN-DC component carriers in the EN-DC, which shall meet the requirements described in table 6.2B.1.2.5-1 and the period of the measurement shall be at least the continuous duration of one active sub-frame.
- 4. For UEs supporting Power Class 2, repeat steps 1~3 on the applicable bands with message exception defined in Table 6.2B.1.1.4.3-5.

#### 6.2B.1.2.4.3 Message contents

Same message contents as specified in 6.2B.1.1.4.3.

#### 6.2B.1.2.5 Test requirements

The maximum output power for the DC configuration, derived in step 3 shall be within the range prescribed by the DC UE Power Class and tolerance in Table 6.2B.1.2.5-1 for power class 3 UE and Table 6.2B.1.2.5-2 for power class 2 UE. The corresponding requirements is specified in table 6.2.2.5-1, 6.2.2\_1.5-1 in TS 36.521-1 [10] or table 6.2.1.5-1, 6.2.1.5-2 in TS 38.521-1 [8].

The maximum output power for the DC configuration, derived in step 4 shall be within the range prescribed in Table 6.2B.1.2.5-1.

Table 6.2B.1.2.5-1: Maximum output power for EN-DC (non-continuous sub-blocks) for power class 3

DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_2A_n2A <sup>4</sup>			23	+2+TT/-3-TT
DC_41A_n41A			23	+2+TT/-3 <sup>1</sup> -TT
DC_66A_n66A <sup>4</sup>			23	+2+TT/-3-TT

NOTE 1: It is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands are confined within F<sub>UL\_low</sub> and F<sub>UL\_low</sub> + 4 MHz or F<sub>UL\_high</sub> - 4 MHz and F<sub>UL\_high</sub>.

NOTE 2: Only single switched UL is supported in Rel-15.

NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2B.1.2.5-3

NOTE 4: Only single switched UL is supported.

Table 6.2B.1.2.5-2: Maximum output power for EN-DC (non-continuous sub-blocks) for power class 2 for Rel-15

DC configuration	Carrier	Power class2	Tolerance (dB)	Condition	Comment
DC_41A_n41A	NR carrier	26	+2+TT/-3 <sup>1</sup> -TT	UE indicates PC2 on NR band	UE meets power class 2 requirements
		23	+2+TT/-2 <sup>1</sup> -TT	UE indicates PC3 on NR band	UE meets power class 3 requirements
	E-UTRA carrier	26	+2+TT/-3 <sup>1</sup> -TT	UE indicates PC3 on E-UTRA carrier of this DC_Configutation	UE meets power class 2 requirements
		23	+2+TT/-2 <sup>1</sup> -TT	UE indicates PC3 on E-UTRA carrier of this DC_Configutation	UE meets power class 3 requirements

NOTE 1: It is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands are confined within Fullow and Fullow + 4 MHz or Fullhigh - 4 MHz and Fullhigh.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.1.1.5-3

Table 6.2B.1.2.5-2a: Maximum output power for EN-DC (non-continuous sub-blocks) for power class 2 for Rel-16 and forward

DC configuration	Carrier	Power class2	Tolerance (dB)	Condition	Comment
DC_41A_n41A	NR carrier	26	+2+TT/-3 <sup>1</sup> -TT	UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-2 <sup>1</sup> -TT	UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC3 by powerClassNRPart- r16) or UE reporting (PC3 by P <sub>PowerClass,NR</sub> )	UE meets power class 3 requirements
	E-UTRA carrier	26	+2+TT/-2 <sup>1</sup> -TT	UE indicates PC2 ON E-UTRA carrier of this DC_Configutation	UE meets power class 2 requirements
		23	+2+TT/-2 <sup>1</sup> -TT	UE indicates PC3 on E-UTRA carrier of this DC_Configutation	UE meets power class 3 requirements

NOTE 1: It is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands are confined within Fullow and Fullow + 4 MHz or Fullhigh - 4 MHz and Fullhigh.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.1.2.5-3

Table 6.2B.1.2.5-3: Test Tolerance

	f ≤ 3.0GHz	3.0GHz < f ≤ 6GHz
BW ≤ 40MHz	0.7 dB	1.0 dB
40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB

# 6.2B.1.3 UE Maximum Output Power for Inter-Band EN-DC within FR1 (1 E-UTRA CC, 1 NR CC)

#### 6.2B.1.3.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified nominal maximum output power and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

#### 6.2B.1.3.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC with 1 E-UTRA CC and 1 NR CC operating on FR1.

#### 6.2B.1.3.3 Minimum conformance requirements

For inter-band EN-DC of E-UTRA and NR in FR1, the following UE Power Classes define the maximum output power for any transmission bandwidth within the aggregated channel bandwidth. The maximum output power is measured as the sum of the maximum output power at each UE antenna connector. The period of measurement shall be at least one sub frame (1ms). UE maximum output power shall be measured over all component carriers from different bands. If each band has separate antenna connectors, maximum output power is measured as the sum of maximum output power at each UE antenna connector.

Table 6.2B.1.3.3-1: Maximum output power for inter-band EN-DC (two bands)

EN-DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_1A_n3A	, ,	, ,	23	+2/-3
DC_1A_n5A			23	+2/-3
DC_1A_n7A			23	+2/-3
DC_1A_n8A			23	+2/-3
DC_1A_n28A			23	+2/-3
DC_1A_n77A			23	+2/-3
DC_1A_n78A	26 <sup>6</sup>	+2/-3	23	+2/-3
DC_1A_n79A			23	+2/-3
DC_2A_n5A			23	+2/-3
DC_2A_n41A			23	+2/-3
DC_2A_n66A			23	+2/-3
DC_2A_n71A			23	+2/-3
DC_2A_n77A	26 <sup>6</sup>	+2/-3	23	+2/-3
DC_2A_n78A			23	+2/-3
DC_3A_n1A			23	+2/-3
DC_3A_n5A			23	+2/-3
DC_3A_n7A			23	+2/-3
DC_3A_n8A			23	+2/-3
DC_3A_n28A			23	+2/-31
DC_3A_n41A	26 <sup>6</sup>	+2/-3	23	+2/-3
DC_3A_n77A			23	+2/-3
DC_3A_n78A	26 <sup>6</sup>	+2/-3	23	+2/-3
DC_3A_n79A	20	12/ 0	23	+2/-3
DC_5A_n2A			23	+2/-3
DC_5A_n40A			23	+2/-3
DC_5A_n66A			23	+2/-3
DC_5A_n77A	26 <sup>6</sup>	+2/-3	23	+2/-3
DC_5A_n78A			23	+2/-3
DC_7A_n1A			23	+2/-3
DC_7A_n3A			23	+2/-3
DC_7A_n5A			23	+2/-3
DC_7A_n8A			23	+2/-3
DC_7A_n28A			23	+2/-3
DC_7A_n66A			23	+2/-3
DC_7A_n78A			23	+2/-3
DC_8A_n1A			23	+2/-3
DC_8A_n3A			23	+2/-3
DC_8A_n20A			23	+2/-3
DC_8A_n28A			23	+2/-3
DC_8A_n41A			23	+2/-3
DC_8A_n77A			23	+2/-3
DC_8A_n78A	26 <sup>6</sup>	+2/-3	23	+2/-3
DC_8A_n81A_ULSUP- TDM_n78A			23	+2/-3
DC_11A_n77A			23	+2/-3
DC_11A_n78A			23	+2/-3

EN-DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_11A_n79A			23	+2/-3
DC_12A_n5A			23	+2/-3
DC_12A_n66A			23	+2/-3
DC_12A_n78A			23	+2/-3
DC_13A_n2A			23	+2/-3
DC_13A_n66A			23	+2/-3
DC_13A_n77A	26 <sup>6</sup>	+2/-3	23	+2/-3
DC_14A_n2A			23	+2/-3
DC_14A_n66A			23	+2/-3
DC_18A_n77A			23	+2/-3
DC_18A_n78A			23	+2/-3
DC_19A_n1A			23	+2/-3
DC_18A_n79A			23	+2/-3
DC_19A_n77A			23	+2/-3
DC_19A_n78A			23	+2/-3
DC_19A_n79A			23	+2/-3
DC_20A_n1A			23	+2/-3
DC_20A_n3A			23	+2/-3
DC_20A_n7A			23	+2/-3
DC_20A_n8A			23	+2/-3
DC_20A_n28A			23	+2/-3
DC_20A_n78A			23	+2/-3
DC_21A_n1A			23	+2/-3
DC_21A_n28A			23	+2/-3
DC_21A_n77A			23	+2/-3
DC_21A_n78A			23	+2/-3
DC_21A_n79A			23	+2/-3
DC_25A_n41A			23	+2/-3
DC_26A_n41A			23	+2/-3
DC_26A_n77A			23	+2/-3
DC_26A_n78A			23	+2/-3
DC_26A_n79A			23	+2/-3
DC_28A_n3A			23	+2/-3
DC_28A_n5A			23	+2/-3
DC_28A_n7A			23	+2/-3
DC_28A_n77A			23	+2/-3
DC_28A_n78A			23	+2/-3
DC_28A_n79A			23	+2/-3
DC_30A_n5A			23	+2/-3
DC_30A_n66A			23	+2/-3
DC_38A_n78A			N/A	N/A
DC_39A_n41A	26	+2/-3	23	+2/-2
DC_39A_n79A	26	+2/-3	23	+2/-3
DC_40A_n1A			23	+2/-3
DC_40A_n41A			23	+2/-3
DC_40A_n78A			23	+2/-3

EN-DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_40A_n79A	,		23	+2/-3
DC_41A_n77A			23	+2/-3
DC_41A_n78A			23	+2/-3
DC_41A_n79A	26	+2/-3	23	+2/-3
DC_42A_n77A			N/A	N/A
DC_42A_n78A			N/A	N/A
DC_42A_n79A			N/A	N/A
DC_48A_n5A			23	+2/-3
DC_48A_n66A			23	+2/-3
DC_66A_n2A			23	+2/-3
DC_66A_n5A			23	+2/-3
DC_66A_n41A			23	+2/-3
DC_66A_n71A		•	23	+2/-3
DC_66A_n77A	26 <sup>6</sup>	+2/-3	23	+2/-3
DC_66A_n78A		·	23	+2/-3

- NOTE 1: An uplink DC configuration in which at least one of the bands has NOTE 3 in Table 6.2.1-1 in TS 38.101-1 or NOTE 2 in Table 6.2.2-1 in TS 36.101 is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands is confined within Fullow and Fullow + 4 MHz or Fullow 4 MHz and Full high.
- NOTE 2: PPowerClass, EN-DC is the maximum UE power specified without taking into account the tolerance.
- NOTE 3: For inter-band EN-DC the maximum power requirement should apply to the total transmitted power over all component carriers (per UE).
- NOTE 4: Power Class 3 is the default power class unless otherwise stated.
- NOTE 5: The UE is not required to support PC2 within each individual cell group. Power class support within each individual cell group is signaled separately by the UE.
- NOTE 6: The UE supports PC3 within E-UTRA cell group, and supports either PC3 or PC2 within NR cell group. Power class support within each individual cell group is signaled separately by the UE.

If a UE supports a different power class than the default UE power class for an EN-DC band combination and NR TDD inter-band EN-DC combination and the supported power class enables higher maximum output power than that of the default power class:

- if the field of UE capability maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16 is absent and the percentage
  of NR uplink symbols transmitted in a certain evaluation period is larger than 30% (The exact evaluation period
  is no less than one radio frame); or
- if the field of UE capability maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16 is not absent and the
  percentage of NR uplink symbols transmitted in a certain evaluation period is larger than maxUplinkDutyCycleinterBandENDC-TDD-PC2-r16 as defined in TS38.331 (The exact evaluation period is no less than one radio
  frame); or
- if the IE *p-maxUE-FR1* as defined in TS 38.331 is provided and set to the maximum output power of the default power class or lower;
  - shall apply all requirements for the default power class to the supported power class and set the configured transmitted power as specified clause 6.2B.4;
- Else if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the
  maximum output power of the default power class and the percentage of uplink symbols transmitted in a certain
  evaluation period is less than or equal to *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* as defined in TS
  38.331; or
- if the IE p-maxUE-FR1 as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal to 30% when maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16 is absent. (The exact evaluation period is no less than one radio frame):

 shall apply all requirements for the supported power class and set the configured transmitted power class as specified in clause 6.2B.4.

If a UE supports a different power class than the default UE power class for an E-UTRA FDD and NR TDD EN-DC band combination and the supported power class enables higher maximum output power than that of the default power class:

If UE indicating the two capabilities maxUplinkDutyCycle-FDD-TDD-EN-DC1 and maxUplinkDutyCycle-FDD-TDD-EN-DC2:

- if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class, and the percentage of E-UTRA uplink symbols transmitted in a certain evaluation period is between 40% and 70%, and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal to *maxUplinkDutyCycle-FDD-TDD-EN-DC1* as defined in TS 38.331 (The exact evaluation period is no less than one radio frame); or
- if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class, and the percentage of E-UTRA uplink symbols transmitted in a certain evaluation period is no larger than 40%, and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal to *maxUplinkDutyCycle-FDD-TDD-EN-DC2* as defined in TS 38.331 (The exact evaluation period is no less than one radio frame)
  - shall apply all requirements for the supported power class and set the configured transmitted power class as specified in sub-clause 6.2B.4.
- else
  - shall apply all requirements for the default power class and set the configured transmitted power as specified sub-clause 6.2B.4;

else

- shall apply all requirements for the supported power class and set the configured transmitted power as specified sub-clause 6.2B.4;

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.1.

LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

6.2B.1.3.4 Test description

6.2B.1.3.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, DC configuration specified in clause 5.5B.4 and test channel bandwidths specified in TS 36.508 [11] clause 4.3.1 and TS 38.508-1 [6] clause 4.3.1, and sub-carrier spacing based on NR operating bands specified in TS 38.521-1 [8] clause 5.3. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration, and are shown in table 6.2B.1.3.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annexe A, clause A.2.3 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A, clause A.2.2 for E-UTRA RMC for FDD, and TS 38.521-1 [8] Annex A, clause A.2 for NR RMC. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C, clause C.2 and in TS 38.521-1 [8] Annex C, clause C.2 for E-UTRA CG and NR CG respectively.

Table 6.2B.1.3.4.1-1: Test configuration table

Default Conditions			
Test Environment as specified in TS 38.508-1 [6] clause 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH		
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 and TS 36.508 [6]	Low range for E-UTRA CC1 and NR CC1, Mid range for E-UTRA CC1 and NR CC1, High range for E-UTRA CC1 and NR CC1 (NOTE 4)		
Test EN-DC channel bandwidth as specified in TS 36.508 [6] clause 4.3.1 and TS 38.508-1 clause 4.3.1	5MHz for E-UTRA CC1 and Lowest for NR CC1, Highest for E-UTRA CC1 and Highest for NR CC1		
Test SCS for the NR cell as specified in TS 38.521- 1 [8] Table 5.3.5-1 Lowest, Highest			
Test P	arameters		

	Test Parameters							
Test ID	Test	E-	NR BW	Downlin		EN-DC Upli	nk Configuration	
	Freq	UTRA		k	E-UT	RA Cell	NR C	ell
		BW		Configur	Modulati	RB	Modulation	RB
				ation	on	allocation (NOTE 1)	(NOTE 3)	allocation (NOTE 2)
1	High	Default	Default	N/A	QPSK	1RB_Right	DFT-s-OFDM PI/2 BPSK	Inner_1RB _Right
2	Low	Default	Default		QPSK	1RB_Left	DFT-s-OFDM PI/2 BPSK	Inner_1RB _Left
3	Default	Default	Default		QPSK	Partial_Allo cation	DFT-s-OFDM PI/2 BPSK	Inner_Full
4	High	Default	Default		QPSK	1RB_Right	DFT-s-OFDM QPSK	Inner_1RB _Right
5	Low	Default	Default		QPSK	1RB_Left	DFT-s-OFDM QPSK	Inner_1RB _Left
6	Default	Default	Default		QPSK	Partial_Allo cation	DFT-s-OFDM QPSK	Inner_Full
7	High	5MHz, Highest	Lowest		QPSK	1RB_Right	N/A	N/A
8	Low	5MHz, Highest	Lowest		QPSK	1RB_Left	N/A	N/A
9	Default	5MHz, Highest	Lowest		QPSK	Partial_Allo cation	N/A	N/A
10	High	5MHz	Lowest, Highest		N/A	N/A	DFT-s-OFDM PI/2 BPSK	Inner_1RB _Right
11	Low	5MHz	Lowest, Highest		N/A	N/A	DFT-s-OFDM PI/2 BPSK	Inner_1RB _Left
12	Default	5MHz	Lowest, Highest		N/A	N/A	DFT-s-OFDM PI/2 BPSK	Inner_Full
13	High	5MHz	Lowest, Highest		N/A	N/A	DFT-s-OFDM QPSK	Inner_1RB _Right
14	Low	5MHz	Lowest, Highest		N/A	N/A	DFT-s-OFDM QPSK	Inner_1RB _Left
15	Default	5MHz	Lowest, Highest		N/A	N/A	DFT-s-OFDM QPSK	Inner_Full

- NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in current specification.
- NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].
- NOTE 3: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in NR FR1.
- NOTE 4: For NR band n28, the Highest test channel bandwidth is replaced by 20MHz due to MPR is always larger than 0dB for 30MHz bandwidth.
  - 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] clause A.3.1.1 for SS and clause A.3.2.1 for UE.
  - 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
  - 4. The UL Reference Measurement channels are set according to Table 6.2B.1.3.3-1.

- 5. Propagation conditions are set according to TS 36.521-1 [10] and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.3.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

#### 6.2B.1.3.4.2 Test procedure

- 1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 6.2B.1.3.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC. For an E-UTRA FDD and NR TDD EN-DC band combination, if UE supports PC2, the percentage of EUTRA uplink symbols transmitted in each radio frame shall be less than 40%.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its P<sub>UMAX</sub> level; allow at least 200 ms from the first TPC command for the UE to reach P<sub>UMAX</sub> level.
- 3. For test ID 1~6 measure the sum of mean transmitted power over all EN-DC component carriers in the EN-DC, which shall meet the requirements described in table 6.2B.1.3.5-1 and the period of the measurement shall be at least the continuous duration of one active sub-frame. For FDD band in inter-band CA with both TDD band and FDD band, only slots overlapping with only UL symbols in TDD are under test.
  - For test ID 7~15 measure the mean transmitted power over E-UTRA carrier or NR carrier, which shall meet the requirements described in table 6.2.2.5-1 in TS 36.521-1 [10] or table 6.2.1.5-1 in TS 38.521-1 [8] respectively. The period of the measurement shall be at least the continuous duration of one active sub-frame.
- 4. For UEs supporting Power Class 2, repeat steps 1~3 on the applicable bands with message exception defined in Table 6.2B.1.3.4.3-5.

#### 6.2B.1.3.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions:

#### Table 6.2B.1.3.4.3-0: *PUSCH-Config*

Derivation Path: TS 38.508-1 [6], Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED

Table 6.2B.1.3.4.3-1: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106					
Information Element	Value/remark	Comment	Condition		
PhysicalCellGroupConfig ::= SEQUENCE {					
p-NR-FR1	20	For simultaneous E-UTRA and NR transmission	Power Class 3 UE Test IDs 1-6		
	23	For Test IDs 7~9 NR carrier is configured but not measured.	Power Class 3 UE Test IDs 7-15		
	23	For simultaneous E-UTRA and NR transmission	Power Class 2 UE Test IDs 1-6		
	26	For Test IDs 7~9 NR carrier is configured but not measured.	Power Class 2 UE Test IDs 7-15		
}					

Table 6.2B.1.3.4.3-2: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8	Derivation Path: TS 36.508 [11], Table 4.6.1-8					
Information Element	Value/remark	Comment	Condition			
p-MaxEUTRA-r15	20	For simultaneous E-UTRA and NR transmission	Power Class 3 UE Test IDs 1-6			
	23	For Test IDs 10~15 E-UTRA carrier is configured but not measured.	Power Class 3 UE Test IDs 7- 15			
	23	For simultaneous E-UTRA and NR transmission	Power Class 2 UE Test IDs 1-6			
	26	For Test IDs 10~15 E-UTRA carrier is configured but not measured.	Power Class 2 UE Test IDs 7- 15			

Table 6.2B.1.3.4.3-3: *RRCConnectionReconfiguration:* tdm-PatternConfig if E-UTRA on FDD band and UE does not support dynamic power sharing

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 CHOICE{			Test IDs 7-15
setup SEQUENCE {			
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			

## Table 6.2B.1.3.4.3-4: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

# Table 6.2B.1.3.4.3-5: RRCConnectionReconfiguration: p-MaxUE-FR1-r15 (step 4 in 6.2B.1.3.4.2)

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
nonCriticalExtension SEQUENCE {		RRCConnectionReconfig uration-v1530-IEs	
p-MaxUE-FR1-r15	23		Power Class 2 UE
}			

#### 6.2B.1.3.5 Test requirements

For test ID 1~6 the maximum output power for the DC configuration, derived in step 3 shall be within the range prescribed by the UE Power Class and tolerance in Table 6.2B.1.3.5-1.

For test ID 7~15 the maximum output power for the DC configuration, derived in step 3 shall be within the range prescribed by the UE Power Class and tolerance in table 6.2.2.5-1 in TS 36.521-1 [10] or table 6.2.1.5-1 in TS 38.521-1 [8] for E-UTRA carrier and NR carrier respectively for Power class 3, and in Table 6.2B.1.3.5-2a for Power class 2.

For test ID 1~6 the maximum output power for the DC configuration, derived in step 4 shall be within the range prescribed by Power Class 3 and tolerance in Table 6.2B.1.3.5-1.

For test ID 7~15 the maximum output power for the DC configuration, derived in step 4 shall be within the range prescribed by Power Class 3 and tolerance in table 6.2.2.5-1 in TS 36.521-1 [10] or table 6.2.1.5-1 in TS 38.521-1 [8] for E-UTRA carrier and NR carrier respectively.

Table 6.2B.1.3.5-1: Maximum output power for inter-band EN-DC (two bands), for overlapping UL transmission

EN-DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_1A_n3A			23	+2 +TT/-3-TT
DC_1A_n5A			23	+2 +TT/-3-TT
DC_1A_n7A			23	+2 +TT/-3-TT
DC_1A_n28A			23	+2 +TT/-3-TT
DC_1A_n77A			23	+2 +TT/-3-TT
DC_1A_n78A	26 <sup>8</sup>	+2+TT/-3-TT	23	+2 +TT/-3-TT
DC_1A_n79A			23	+2 +TT/-3-TT
DC_2A_n5A			23	+2 +TT/-3-TT <sup>3</sup>
DC_2A_n41A			23	+2 +TT/-3-TT
DC_2A_n66A			23	+2 +TT/-3-TT <sup>3</sup>
DC_2A_n71A			23	+2 +TT/-3-TT
DC_2A_n77A	26 <sup>8</sup>	+2+TT/-3-TT	23	+2+TT/-3-TT <sup>3</sup>
DC_2A_n78A			23	+2 +TT/-3-TT
DC_3A_n1A			23	+2 +TT/-3-TT
DC_3A_n5A			23	+2 +TT/-3-TT
DC_3A_n7A			23	+2 +TT/-3-TT <sup>3</sup>
DC_3A_n8A			23	+2 +TT/-3-TT
DC_3A_n28A			23	+2 +TT/-3-TT <sup>3</sup>
DC_3A_n41A	26 <sup>8</sup>	+2+TT/-3-TT <sup>3</sup>	23	+2+TT/-3-TT <sup>3</sup>
DC_3A_n77A			23	+2 +TT/-3-TT <sup>3</sup>
DC_3A_n78A	26 <sup>8</sup>	+2+TT/-3-TT <sup>3</sup>	23	+2 +TT/-3-TT <sup>3</sup>
DC_3A_n79A			23	+2 +TT/-3-TT <sup>3</sup>
DC_5A_n2A			23	+2 +TT/-3-TT
DC_5A_n66A			23	+2 +TT/-3-TT <sup>3</sup>
DC_5A_n77A	26 <sup>8</sup>	+2+TT/-3-TT	23	+2+TT/-3-TT
DC_5A_n78A			23	+2 +TT/-3-TT
DC_7A_n1A			23	+2 +TT/-3-TT
DC_7A_n3A			23	+2 +TT/-3-TT
DC_7A_n5A			23	+2 +TT/-3-TT
DC_7A_n28A			23	+2 +TT/-3-TT <sup>3</sup>
DC_7A_n66A			23	+2 +TT/-3-TT <sup>3</sup>
DC_7A_n78A			23	+2 +TT/-3-TT
DC_8A_n1A				+2 +TT/-3-TT
DC_8A_n3A				+2 +TT/-3-TT
DC_8A_n20A			23	+2 +TT/-3-TT
DC_8A_n41A			23	+2 +TT/-3-TT
DC_8A_n77A			23	+2 +TT/-3-TT
DC_8A_n78A	26 <sup>8</sup>	+2+TT/-3-TT	23	+2 +TT/-3-TT
DC_11A_n77A			23	+2 +TT/-3-TT
DC_11A_n78A			23	+2 +TT/-3-TT
DC_11A_n79A			23	+2 +TT/-3-TT
DC_12A_n5A			23	+2 +TT/-3-TT
DC_12A_n66A			23	+2 +TT/-3-TT
DC_12A_n78A			23	+2 +TT/-3-TT
DC_13A_n2A			23	+2 +TT/-3-TT
DC_13A_n66A			23	+2 +TT/-3-TT

EN-DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_13A_n77A	26 <sup>8</sup>	+2+TT/-3-TT	23	+2+TT/-3-TT
DC_14A_n2A			23	+2 +TT/-3-TT
DC_14A_n66A			23	+2 +TT/-3-TT
DC_18A_n77A			23	+2 +TT/-3-TT
DC_18A_n78A			23	+2 +TT/-3-TT
DC_18A_n79A			23	+2 +TT/-3-TT
DC_19A_n1A			23	+2 +TT/-3-TT
DC_19A_n77A			23	+2 +TT/-3-TT
DC_19A_n78A			23	+2 +TT/-3-TT
DC_19A_n79A			23	+2 +TT/-3-TT
DC_20A_n1A			23	+2 +TT/-3-TT
DC_20A_n3A			23	+2 +TT/-3-TT
DC_20A_n7A			23	+2 +TT/-3-TT
DC_20A_n8A			23	+2 +TT/-3-TT
DC_20A_n28A			23	+2 +TT/-3-TT
DC_20A_n78A			23	+2 +TT/-3-TT
DC_21A_n1A			23	+2 +TT/-3-TT
DC_21A_n28A			23	+2 +TT/-3-TT
DC_21A_n77A			23	+2 +TT/-3-TT
DC_21A_n78A			23	+2 +TT/-3-TT
DC_21A_n79A			23	+2 +TT/-3-TT
DC_25A_n41A			23	+2 +TT/-3-TT
DC_26A_n41A			23	+2 +TT/-3-TT
DC_26A_n77A			23	+2 +TT/-3-TT
DC_26A_n78A			23	+2 +TT/-3-TT
DC_26A_n79A			23	+2 +TT/-3-TT
DC_28A_n3A			23	+2 +TT/-3-TT
DC_28A_n5A			23	+2 +TT/-3-TT
DC_28A_n7A			23	+2 +TT/-3-TT
DC_28A_n77A			23	+2 +TT/-3-TT
DC_28A_n78A			23	+2 +TT/-3-TT
DC_28A_n79A			23	+2 +TT/-3-TT
DC_30A_n5A			23	+2 +TT/-3-TT
DC_30A_n66A			23	+2 +TT/-3-TT
DC_38A_n78A			N/A	N/A
DC_39A_n41A	26	+2/-31	23	+2 +TT/-3-TT <sup>3</sup>
DC_39A_n79A	26	+2/-3	23	+2 +TT/-3-TT <sup>3</sup>
DC_40A_n1A			23	+2 +TT/-3-TT
DC_40A_n41A			23	+2 +TT/-3-TT
DC_40A_n78A			23	+2 +TT/-3-TT
DC_40A_n79A			23	+2 +TT/-3-TT
DC_41A_n77A			23	+2 +TT/-3-TT <sup>3</sup>
DC_41A_n78A			23	+2 +TT/-3-TT <sup>3</sup>
DC_41A_n79A	26	+2/-31	23	+2 +TT/-3-TT <sup>3</sup>
DC_42A_n77A			N/A	N/A
DC_42A_n78A			N/A	N/A

EN-DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_42A_n79A			N/A	N/A
DC_48A_n5A			23	+2 +TT/-3-TT
DC_48A_n66A			23	+2 +TT/-3-TT
DC_66A_n2A			23	+2 +TT/-3-TT
DC_66A_n5A			23	+2 +TT/-3-TT <sup>3</sup>
DC_66A_n41A			23	+2 +TT/-3-TT
DC_66A_n71A			23	+2 +TT/-3-TT
DC_66A_n77A	26 <sup>8</sup>	+2+TT/-3-TT	23	+2+TT/-3-TT
DC_66A_n78A			23	+2 +TT/-3-TT

- NOTE 1: TT applies to output power in each UL carrier with E-UTRA UL transmission not overlapping with NR UL transmission in time, and its value is the same as TT of standalone E-UTRA or NR transmission. For detailed values refer to Table 6.2B.1.3.5-4.
- NOTE 2: TT applies to overall output power with E-UTRA UL transmission overlapping with NR UL transmission in time, and its value is the maximum TT among all E-UTRA and NR UL carriers. For detailed values refer to Table 6.2B.1.3.5-3.
- NOTE 3: For the transmission bandwidths confined within F<sub>UL\_low</sub> and F<sub>UL\_low</sub> + 4 MHz or F<sub>UL\_high</sub>, 4 MHz and F<sub>UL\_high</sub>, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB.
- NOTE 4: P<sub>PowerClass</sub>, EN-DC is the maximum UE power specified without taking into account the tolerance.
- NOTE 5: For inter-band EN-DC the maximum power requirement should apply to the total transmitted power over all component carriers (per UE).
- NOTE 6: Power Class 3 is the default power class unless otherwise stated.
- NOTE 7: The UE is not required to support PC2 within each individual cell group. Power class support within each individual cell group is signaled separately by the UE.
- NOTE 8: The UE supports PC3 within E-UTRA cell group, and supports either PC3 or PC2 within NR cell group. Power class support within each individual cell group is signaled separately by the UE.

Table 6.2B.1.3.5-2: Void

Table 6.2B.1.3.5-2a: Maximum output power for inter-band EN-DC (two bands), for non-overlapping UL transmission for power class 2

EN-DC configuration	Carrier	Power class 2 (dBm)	Tolerance (dB)	Condition	Comment
DC_1A_n78A	NR carrier	26	+2+TT/-3-TT	Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-3-TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPowerClass,NR, and PC3 by powerClassNRPart- r16)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2-TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements
DC_2A_n77A	NR carrier	26	+2+TT/-3-TT	Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-3-TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPOWERCIASS,NR, and PC3 by powerClassNRPart- r16)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2 <sup>2</sup> -TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements
DC_3A_n41A	NR carrier	26	+2+TT/-3 <sup>2</sup> -TT	Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by PPOWER CLASS,NR, and PC2 or Not present by power Class NR Part- r16)	UE meets power class 2 requirements
		23	+2+TT/-2 <sup>2</sup> -TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPowerClass,NR, and PC3 by powerClassNRPart-r16)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2 <sup>2</sup> -TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements

DC 3/ n79/	NP corrier	26	+2+TT/-3-TT	Pol-15 LIE indicatos	LIE meets nower
DC_3A_n78A	NR carrier			Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-3-TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPowerClass,NR, and PC3 by powerClassNRPart-r16)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2 <sup>2</sup> -TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements
DC_5A_n77A	NR carrier	26	+2+TT/-3-TT	Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-3-TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPOWETCLASS,NR, and PC3 by powerClassNRPart- r16) or UE reporting (PC3 by PPOWETCLASS,NR)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2-TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements
DC_8A_n78A	NR carrier	26	+2+TT/-3-TT	Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by PPOWETCLASS,NR, and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-3-TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPowerClass,NR, and PC3 by powerClassNRPart-r16)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2-TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements

DC_13A_n77A #	NR carrier	26	+2+TT/-3-TT	Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P <sub>PowerClass,NR</sub> , and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-3-TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPOWETClass,NR, and PC3 by powerClassNRPart- r16)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2-TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements
DC_39A_n41A	NR carrier	26	+2+TT/-3 <sup>2</sup> -TT	Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by PPOWERCIASS,NR, and PC2 or Not present by powerClassNRPart-r16)	UE meets power class 2 requirements
		23	+2+TT/-2 <sup>2</sup> -TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPowerClass,NR, and PC3 by powerClassNRPart-r16)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2 <sup>2</sup> -TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements
DC_39A_n79A	NR carrier	26	+2+TT/-3-TT	Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by PPOWERCLASS,NR, and PC2 or Not present by powerClassNRPart- r16)	UE meets power class 2 requirements
		23	+2+TT/-3-TT	Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by PPOWER Class, NR, and PC3 by power Class NR Part- r16)	UE meets power class 3 requirements
	E-UTRA carrier	23	+2+TT/-2 <sup>2</sup> -TT	UE indicates PC3 on E-UTRA band	UE meets power class 3 requirements

DC_41A_n79A	NR carrier	26	+2+TT/-3-TT	Rel-15 UE indicates	UE meets power
DO_41/\_11/3/\	TVIX Carrier	20	12111/ 0 11	PC2 on NR band,	class 2
				Rel-16 and forward	requirements
				UE reporting (PC2	
				by P <sub>PowerClass,NR</sub> ,	
				and PC2 or Not	
				present by	
				powerClassNRPart- r16)	
		23	+2+TT/-3-TT	Rel-15 and forward	UE meets power
		20	12111/011	UE indicates PC3	class 3
				on NR band, Rel-16	requirements
				and forward UE	•
				reporting (PC2 by	
				P <sub>PowerClass,NR</sub> , and PC3 by	
				powerClassNRPart-	
	E-UTRA carrier	26	+2+TT/-2 <sup>2</sup> -TT	r16) UE indicates PC2	UE meets power
	L-OTIVA Carrier	20	TZT11/-Z -11	on E-UTRA band	class 2
				on E o mor band	requirements
		23	+2+TT/-2 <sup>2</sup> -TT	UE indicates PC3	UE meets power
				on E-UTRA band	class 3
					requirements
DC_66A_n77A	NR carrier	26	+2+TT/-3-TT	Rel-15 UE indicates	UE meets power
				PC2 on NR band, Rel-16 and forward	class 2 requirements
				UE reporting (PC2	requirements
				by P <sub>PowerClass,NR</sub> ,	
				and PC2 or Not	
				present by	
				powerClassNRPart-	
				r16)	
		23	+2+TT/-3-TT	Rel-15 and forward	UE meets power
				UE indicates PC3	class 3
				on NR band, Rel-16 and forward UE	requirements
				reporting (PC2 by	
				P <sub>PowerClass,NR</sub> , and	
				PC3 by	
				powerClassNRPart-	
		_		r16)	
	E-UTRA carrier	23	+2+TT/-2-TT	UE indicates PC3	UE meets power
				on E-UTRA band	class 3
					requirements

NOTE 1: TT applies to output power in each UL carrier with E-UTRA UL transmission not overlapping with NR UL transmission in time, and its value is the same as TT of standalone E-UTRA or NR transmission. For detailed values refer to Table 6.2B.1.3.5-4.

NOTE 2: For the transmission bandwidths confined within  $F_{UL,low}$  and  $F_{UL,low}$  + 4 MHz or  $F_{UL,high}$  - 4 MHz and  $F_{UL,high}$ , the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB. NOTE 3: PPowerClass, EN-DC is the maximum UE power specified without taking into account the tolerance.

Table 6.2B.1.3.5-3: Test Tolerance for UE maximum output power (Overlapping UL transmission)

	TT for overall output power										
		NR									
			В	W ≤ 20MI	-lz	20 MH	z < BW ≤	40MHz	40MHz	< BW ≤ 1	00MHz
			f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
E-	BW≤	f ≤ 3.0GHz	0.7 dB	1.0 dB	1.0 dB	0.7 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB
UTRA	20MHz	3.0GHz < f ≤ 4.2GHz	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB

Table 6.2B.1.3.5-4: Test Tolerance for UE maximum output power (Separate measurements over E-UTRA and NR CCs)

Uplink TX		f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6GHz
E-UTRA	BW ≤ 20MHz	0.7 dB	1.0 dB	1.3 dB
NR	BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB
	40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB

# 6.2B.1.3\_1 UE Maximum Output Power for Inter-Band EN-DC within FR1 (2 E-UTRA CCs, 1 NR CC)

#### 6.2B.1.3 1.1 Test purpose

Same test purpose as in clause 6.2B.1.3.1

#### 6.2B.1.3\_1.2 Test applicability

This test applies to all types of E-UTRA UE release 16 and forward, supporting inter-band EN-DC with 2 E-UTRA CCs and 1 NR CC operating on FR1.

#### 6.2B.1.3\_1.3 Minimum conformance requirements

For inter-band EN-DC of E-UTRA and NR in FR1, the following UE Power Classes define the maximum output power for any transmission bandwidth within the aggregated channel bandwidth. The maximum output power is measured as the sum of the maximum output power at each UE antenna connector. The period of measurement shall be at least one sub frame (1ms). UE maximum output power shall be measured over all component carriers from different bands. If each band has separate antenna connectors, maximum output power is measured as the sum of maximum output power at each UE antenna connector.

Table 6.2B.1.3\_1.3-1: Maximum output power for inter-band EN-DC (two bands)

EN-DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_7C_n78A			23	+2/-3

- NOTE 1: For the transmission bandwidths confined within Fullow and Fullow + 4 MHz or Fullhigh 4 MHz and Fullhigh, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB.
- NOTE 2: PPowerClass, EN-DC is the maximum UE power specified without taking into account the tolerance.
- NOTE 3: For inter-band EN-DC the maximum power requirement should apply to the total transmitted power over all component carriers (per UE).
- NOTE 4: Power Class 3 is the default power class unless otherwise stated.
- NOTE 5: The UE is not required to support PC2 within each individual cell group. Power class support within each individual cell group is signalled separately by the UE.
- NOTE 6: The UE supports PC3 within E-UTRA cell group, and supports either PC3 or PC2 within NR cell group. Power class support within each individual cell group is signalled separately by the UE.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.1.

LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

6.2B.1.3\_1.4 Test description

6.2B.1.3\_1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, DC configuration specified in clause 5.5B.4 and test channel bandwidths specified in TS 36.508 [11] clause 4.3.1 and TS 38.508-1 [6] clause 4.3.1, and sub-carrier spacing based on NR operating bands specified in TS 38.521-1 [8] clause 5.3. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration, and are shown in table 6.2B.1.3\_1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annexe A, clause A.2.3 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A, clause A.2.2 for E-UTRA RMC for FDD, and TS 38.521-1 [8] Annex A, clause A.2 for NR RMC. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C, clause C.2 and in TS 38.521-1 [8] Annex C, clause C.2 for E-UTRA CG and NR CG respectively.

Inner\_1RB

Left

Inner\_Full

DFT-s-OFDM

QPSK

DFT-s-OFDM

N/A

N/A

Table 6.2B.1.3\_1.4.1-1: Test configuration table

				Default	Conditions					
	rironment				Normal, TL/VL, TL/VH, TH/VL, TH/VH					
		38.508-1 [6	] clause 4.´	1	1401mai, 12, 12, 11, 11, 11, 12, 11, 11					
Test Free		00 500 4 50			Low range for MCG and SCG,					
	as specified in TS 38.508-1 [6] clause 4.3.1 and TS 36.508 [6]					High range for MCG and SCG				
		el bandwid	th as speci	fied in	Lowest N <sub>R</sub>	B and for E-UTF	RA CCs and Lowe	st for NR		
		se 4.3.1 and			CC1,	agg				
clause 4.					Highest N <sub>F</sub>	RB_agg for E-UTI	RA CCs and High	est for NR		
					CC1					
		R cell as sp	pecified in <sup>-</sup>	ΓS 38.521-	Lowest, Hi	ghest				
1 [8] 1 ab	le 5.3.5-1			Tost D	arameters					
Test ID	Test	E-	NR BW	Downlink	aranneters	FN-DC Unli	nk Configuration	1		
	Freq	UTRA		Configur	MCG -	- EUTRA	SCG -			
		BW		ation		&SCC				
					Modulati	RB	Modulation	RB		
					on	allocation (NOTE 1)	(NOTE 3)	allocation (NOTE 2)		
1	High	Default	Default		QPSK	1RB_Right	DFT-s-OFDM PI/2 BPSK	Inner_1RB _Right		
2	Low	Default	Default		QPSK	1RB_Left	DFT-s-OFDM PI/2 BPSK	Inner_1RB _Left		
3	Default	Default	Default		QPSK	Partial_Allo cation	DFT-s-OFDM PI/2 BPSK	Inner_Full		
4	High	Default	Default		QPSK	1RB_Right	DFT-s-OFDM QPSK	Inner_1RB _Right		
5	Low	Default	Default		QPSK	1RB_Left	DFT-s-OFDM QPSK	Inner_1RB _Left		
6	Default	Default	Default		QPSK	Partial_Allo cation	DFT-s-OFDM QPSK	Inner_Full		
7	High	Lowest $N_{RB\_agg}$ ,	Lowest		QPSK	1RB_Right	N/A	N/A		
,	riigii	Highest N <sub>RB_agg</sub>	Lowest		QFSK	TKB_Kigiti	IV/A	IN/A		
		Lowest								
8	Low	$N_{RB\_agg}$ , Highest	Lowest	N/A	QPSK	1RB_Left	N/A	N/A		
		N <sub>RB_agg</sub>								
		Lowest								
9	Default	N <sub>RB_agg</sub> , Highest	Lowest		QPSK	Partial_Allo cation	N/A	N/A		
		N <sub>RB_agg</sub>				52				
10	High	Lowest	Lowest,		N/A	N/A	DFT-s-OFDM	Inner_1RB		
INRB_agg Highest					14//	14//1	PI/2 BPSK	_Right		
11	Low	Lowest N <sub>RB_agg</sub>	Lowest, Highest		N/A	N/A	DFT-s-OFDM PI/2 BPSK	Inner_1RB _Left		
12	Default	Lowest N <sub>RB_agg</sub>	Lowest, Highest		N/A	N/A	DFT-s-OFDM PI/2 BPSK	Inner_Full		
13	High	Lowest N <sub>RB_agg</sub>	Lowest, Highest		N/A	N/A	DFT-s-OFDM QPSK	Inner_1RB _Right		

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-2 in current specification.

For 1RB\_Left allocation, the PCC is located on the lower frequency while SCC is located on the higher frequency. For 1RB\_Right allocation, the PCC is located on the higher frequency while SCC is located on the lower frequency.

N/A

N/A

is located on the lower frequency.

NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].

NOTE 3: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in NR FR1.

Lowest

 $N_{RB\_agg}$ 

Lowest

14

Low

Default

Lowest,

Highest

Lowest.

<sup>1.</sup> Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] clause A.3.1.1 for SS and clause A.3.2.1 for UE.

- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG PCC and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are set according to Table 6.2B.1.3\_1.3-1.
- 5. Propagation conditions are set according to TS 36.521-1 [10] and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.3 1.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

## 6.2B.1.3\_1.4.2 Test procedure

- 1. Configure E-UTRA SCC according to TS 36.521-1 [10] Annex C.0, C.1 and Annex C.3.0 for all E-UTRA downlink physical channels.
- 2. The SS shall configure SCC as per TS 36.508 [11] clause 5.2A.4. Message contents are defined in clause 6.2B.1.3 1.4.3.
- 3. SS activates SCC by sending the activation MAC-CE (Refer TS 36.321, clauses 5.13, 6.1.3.8). Wait for at least 2 seconds (Refer TS 36.133 [12], clauses 8.3.3.2).
- 4. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.2B.1.3\_1.4.1-1 on E-UTRA PCC and SCC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 5. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command for the UE to reach  $P_{UMAX}$  level.
- 6. For test ID 1~6 measure the sum of mean transmitted power over all EN-DC component carriers in the EN-DC, which shall meet the requirements described in table 6.2B.1.3\_1.5-1 and the period of the measurement shall be at least the continuous duration of one active sub-frame.

For test ID 7~9 measure the sum of mean transmitted power over all E-UTRA component carriers, which shall meet the requirements described in Table 6.2.2A.1.5-1 in TS 36.521-1 [10]. The period of the measurement shall be at least the continuous duration of one active sub-frame.

For test ID 10~15 measure the mean transmitted power over NR carrier, which shall meet the requirements described in Table 6.2.1.5-1 in TS 38.521-1 [8] respectively. The period of the measurement shall be at least the continuous duration of one active sub-frame.

# 6.2B.1.3\_1.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions:

## Table 6.2B.1.3\_1.4.3-1: PUSCH-Config

Derivation Path: TS 38.508-1 [6], Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED

# Table 6.2B.1.3\_1.4.3-2: PhysicalCellGroupConfig

Value/remark	Comment	Condition
20	For simultaneous E-UTRA and NR transmission	Power Class 3 UE Test IDs 1-6
23	For Test IDs 7~9 NR carrier is configured but not measured.	Power Class 3 UE Test IDs 7-15
	20	20 For simultaneous E-UTRA and NR transmission  23 For Test IDs 7~9 NR carrier is configured but not

## Table 6.2B.1.3\_1.4.3-3: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	20	For simultaneous E-UTRA and NR transmission	Power Class 3 UE Test IDs 1-6
	23	For Test IDs 10~15 E-UTRA carrier is configured but not measured.	Power Class 3 UE Test IDs 7- 15

# Table 6.2B.1.3\_1.4.3-4: RRCConnectionReconfiguration: tdm-PatternConfig if E-UTRA on FDD band and UE does not support dynamic power sharing

Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 CHOICE{			Test IDs 7-15
setup SEQUENCE {			
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			

# Table 6.2B.1.3\_1.4.3-5: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

## 6.2B.1.3\_1.5 Test requirements

For test ID 1~6 the maximum output power for the DC configuration, derived in step 6 shall be within the range prescribed by the UE Power Class and tolerance in Table 6.2B.1.3\_1.5-1.

For test ID 7~15 the maximum output power for the DC configuration, derived in step 6 shall be within the range prescribed by the UE Power Class and tolerance in Table 6.2.2A.1.5-1 in TS 36.521-1 [10] or Table 6.2.1.5-1 in TS 38.521-1 [8] for E-UTRA CG and NR CG respectively for Power class 3.

Table 6.2B.1.3\_1.5-1: Maximum output power for inter-band EN-DC (two bands), for overlapping UL transmission

EN-DC configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)
DC_7C_n78A			23	+2+TT/-3-TT

- NOTE 1: TT applies to output power in each UL carrier with E-UTRA UL transmission not overlapping with NR UL transmission in time, and its value is the same as TT of standalone E-UTRA or NR transmission. For detailed values refer to Table 6.2B.1.3 1.5-2.
- NOTE 2: TT applies to overall output power with E-UTRA UL transmission overlapping with NR UL transmission in time, and its value is the maximum TT among all E-UTRA and NR UL carriers. For detailed values refer to Table 6.2B.1.3\_1.5-2.
- NOTE 3: For the transmission bandwidths confined within F<sub>UL\_low</sub> and F<sub>UL\_low</sub> + 4 MHz or F<sub>UL\_high</sub> 4 MHz and F<sub>UL\_high</sub>, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB.
- NOTE 4: P<sub>PowerClass, EN-DC</sub> is the maximum UE power specified without taking into account the tolerance.
- NOTE 5: For inter-band EN-DC the maximum power requirement should apply to the total transmitted power over all component carriers (per UE).
- NOTE 6: Power Class 3 is the default power class unless otherwise stated.
- NOTE 7: The UE is not required to support PC2 within each individual cell group. Power class support within each individual cell group is signalled separately by the UE.
- NOTE 8: The UE supports PC3 within E-UTRA cell group, and supports either PC3 or PC2 within NR cell group. Power class support within each individual cell group is signalled separately by the UE.

Table 6.2B.1.3 1.5-2: Test Tolerance for UE maximum output power (Overlapping UL transmission)

	TT for overall output power												
				NR									
			B	W ≤ 20MI	-lz	20 MH	z < BW ≤	40MHz	40MHz	< <b>BW</b> ≤ 1	00MHz		
			f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz		
E-	BW≤	f ≤ 3.0GHz	0.7 dB	1.0 dB	1.0 dB	0.7 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB		
UTRA	20MHz	3.0GHz < f ≤ 4.2GHz	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB		

# 6.2B.1.3a UE Maximum Output Power for Inter-Band NE-DC within FR1

6.2B.1.3a.1 Test purpose

Same test purpose as in clause 6.2B.1.3.1.

6.2B.1.3a.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band NE-DC operating on FR1.

## 6.2B.1.3a.3 Minimum conformance requirements

For inter-band NE-DC of E-UTRA and NR in FR1, the following UE power classes define the maximum output power for any transmission bandwidth within the aggregated channel bandwidth. The maximum output power is measured as the sum of the maximum output power at each UE antenna connector. The period of measurement shall be at least one sub frame (1 ms). UE maximum output power shall be measured over all component carriers from different bands. If each band has separate antenna connectors, maximum output power is measured as the sum of maximum output power at each UE antenna connector.

Table 6.2B.1.3a.3-1: Maximum output power for inter-band NE-DC (two bands)

NE-DC configuration	Power class 3 (dBm)	Tolerance (dB)
DC_n28A_3A DC_n28A_3C	23	+2/-3
DC_n28A_39A	23	+2/-3

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.1.3a.

6.2B.1.3a.4 Test description

6.2B.1.3a.4.1 Initial condition

Same initial condition as in clause 6.2B.1.3.4.1 with the following exception:

Step 6 of Initial conditions will be updated as below:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity NE-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.3a.4.3.

6.2B.1.3a.4.2 Test procedure

Same test procedure as in clause 6.2B.1.3.4.2

6.2B.1.3a.4.3 Message contents

Same message contents as in clause 6.2B.1.3.4.3.

6.2B.1.3a.5 Test requirements

For test ID 1~6 the maximum output power for the DC configuration, derived in step 3 shall be within the range prescribed by the UE Power Class and tolerance in Table 6.2B.1.3a.5-1 for NE-DC.

Table 6.2B.1.3a.5-1: Maximum output power for inter-band NE-DC (two bands), for overlapping UL transmission

NE-DC configuration	Power class 3 (dBm)	Tolerance (dB)
DC_n28A_3A	23	+2+TT/-3-TT
DC_n28A_3C		
DC n28A 39A	23	+2+TT/-3-TT

Same Test Tolerance as in Table 6.2B.1.3.5-3.

# 6.2B.1.4 UE Maximum Output Power for Inter-Band EN-DC including FR2

# 6.2B.1.4.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (1 NR CC) - EIRP and TRP

Editor's note: The following aspects are either missing or not yet determined:

The referred test case 6.2.1.1 in TS 38.521-2 is incomplete for power class 1 FR2b, 2 and 4.

## 6.2B.1.4.1.1 Test purpose

Same test purpose as in clause 6.2.1.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.2B.1.4.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

## 6.2B.1.4.1.3 Minimum conformance requirements

UE maximum output power requirement for E-UTRA single carrier and CA operation specified in subclauses 6.2.2 and 6.2.2A of TS 36.101 [10] and for NR single carrier and CA operation specified in subclause 6.2.1, 6.2A.1, and 6.2D.1 of TS 38.101-2 [9] apply.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.1.4.

## 6.2B.1.4.1.4 Test description

Same test description as in clause 6.2.1.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 6.2.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.1.4.1.5 Test requirement

Same test requirement as in clause 6.2.1.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.2B.1.4.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (1 NR CC) - Spherical Coverage

Editor's note: The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances are FFS for power class 1, 2 and 4.

## 6.2B.1.4.2.1 Test purpose

Same test purpose as in clause 6.2.1.2.1 in TS 38.521-2 [9] for the NR carrier.

# 6.2B.1.4.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

## 6.2B.1.4.2.3 Minimum conformance requirements

UE maximum output power requirement for E-UTRA single carrier and CA operation specified in subclauses 6.2.2 and 6.2.2A of TS 36.101 [10] and for NR single carrier and CA operation specified in subclause 6.2.1, 6.2A.1, and 6.2D.1 of TS 38.101-2 [9] apply.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.1.4.

#### 6.2B.1.4.2.4 Test description

Same test description as in clause 6.2.1.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 6.2.1.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of initial conditions as in clause 6.2.1.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2.1.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.2B.1.4.2.5 Test requirement

Same test requirement as in clause 6.2.1.2.5 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.1.4\_1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (>1 NR CC)

6.2B.1.4\_1.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (2 NR CCs)

6.2B.1.4\_1.1.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (2 NR CCs) - EIRP and TRP

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.1.1 in TS 38.521-2 [9] is incomplete for aggregated BW > 400MHz.
- The referred test case 6.2A.1.1.1 in TS 38.521-2 [9] is incomplete for power class 1, 2 and 4.
- Test Procedures for EIRP beam peak Extreme Conditions are FFS.

#### 6.2B.1.4\_1.1.1.1 Test purpose

Same test purpose as in clause 6.2.1.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.1.4\_1.1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

## 6.2B.1.4\_1.1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.1.3

#### 6.2B.1.4\_1.1.1.4 Test description

#### 6.2B.1.4 1.1.1.4.1 Initial condition

Same test description as in clause 6.2A.1.1.1.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.1.4\_1.1.1.5 Test Requirements

Same test requirement as in clause 6.2A.1.1.1.5 in TS 38.521-2 [9] for the NR carriers.

# 6.2B.1.4\_1.1.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (2 NR CCs) - Spherical Coverage

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.2.1 in TS 38.521-2 is incomplete for aggregated BW > 400MHz.
- The referred test case 6.2A.1.2.1 in TS 38.521-2 is incomplete for power class 1, 2 and 4.

#### 6.2B.1.4\_1.1.2.1 Test purpose

Same test purpose as in clause 6.2.1.2.1 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.1.4\_1.1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2NR UL CCs.

## 6.2B.1.4\_1.1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.2.3.

## 6.2B.1.4\_1.1.2.4 Test description

#### 6.2B.1.4\_1.1.2.4.1 Initial condition

Same test description as in clause 6.2A.1.2.1.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.2B.1.4 1.1.2.5 Test Requirements

Same test requirement as in clause 6.2A.1.2.1.5 in TS 38.521-2 [9] for the NR carriers.

# 6.2B.1.4\_1.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 NR CCs)

# 6.2B.1.4\_1.2.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 NR CCs) - EIRP and TRP

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.1.2 in TS 38.521-2 is incomplete for aggregated BW > 400MHz.
- The referred test case 6.2A.1.1.2 in TS 38.521-2 is incomplete for power class 1, 2 and 4.
- Test Procedures for EIRP beam peak Extreme Conditions are FFS.

#### 6.2B.1.4 1.2.1.1 Test purpose

Same test purpose as in clause 6.2.1.1.1 in TS 38.521-2 [9] for the NR carriers.

# 6.2B.1.4\_1.2.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3NR UL CCs.

## 6.2B.1.4\_1.2.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.1.3.

6.2B.1.4\_1.2.1.4 Test description

#### 6.2B.1.4\_1.2.1.4.1 Initial condition

Same test description as in clause 6.2A.1.1.2.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.1.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.1.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.1.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.1.4\_1.2.1.5 Test Requirements

Same test requirement as in clause 6.2A.1.1.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.2B.1.4\_1.2.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 NR CCs) - Spherical Coverage

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.2.2 in TS 38.521-2 is incomplete for aggregated BW > 400MHz.
- The referred test case 6.2A.1.2.2 in TS 38.521-2 is incomplete for power class 1, 2 and 4.

## 6.2B.1.4\_1.2.2.1 Test purpose

Same test purpose as in clause 6.2.1.2.1 in TS 38.521-2 [9] for the NR carriers.

#### 6.2B.1.4\_1.2.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

## 6.2B.1.4\_1.2.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.2.3.

## 6.2B.1.4\_1.2.2.4 Test description

#### 6.2B.1.4\_1.2.2.4.1 Initial condition

Same test description as in clause 6.2A.1.2.2.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.2.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.2.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.2.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.2B.1.4\_1.2.2.5 Test Requirements

Same test requirement as in clause 6.2A.1.2.2.5 in TS 38.521-2 [9] for the NR carriers.

6.2B.1.4\_1.3 UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 NR CCs)

6.2B.1.4\_1.3.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 NR CCs) - EIRP and TRP

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.1.3 in TS 38.521-2 is incomplete for aggregated BW > 400MHz.
- The referred test case 6.2A.1.1.3 in TS 38.521-2 is incomplete for power class 1, 2 and 4.
- Test Procedures for EIRP beam peak Extreme Conditions are FFS.

#### 6.2B.1.4\_1.3.1.1 Test purpose

Same test purpose as in clause 6.2.1.1.1 in TS 38.521-2 [9] for the NR carriers.

#### 6.2B.1.4\_1.3.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4NR UL CCs.

## 6.2B.1.4\_1.3.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.1.3.

#### 6.2B.1.4 1.3.1.4 Test description

## 6.2B.1.4\_1.3.1.4.1 Initial condition

Same test description as in clause 6.2A.1.1.3.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.1.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.

3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.1.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.1.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.2B.1.4\_1.3.1.5 Test Requirements

Same test requirement as in clause 6.2A.1.1.3.5 in TS 38.521-2 [9] for the NR carriers.

6.2B.1.4\_1.3.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 NR CCs) – Spherical Coverage

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.2.3 in TS 38.521-2 is incomplete for aggregated BW > 400MHz.
- The referred test case 6.2A.1.2.3 in TS 38.521-2 is incomplete for power class 1, 2 and 4.

## 6.2B.1.4\_1.3.2.1 Test purpose

Same test purpose as in clause 6.2.1.2.1 in TS 38.521-2 [9] for the NR carriers.

# 6.2B.1.4\_1.3.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4NR UL CCs.

# 6.2B.1.4\_1.3.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.2.3.

## 6.2B.1.4\_1.3.2.4 Test description

# 6.2B.1.4\_1.3.2.4.1 Initial condition

Same test description as in clause 6.2A.1.2.3.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.2.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.2.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.2.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.1.4\_1.3.2.5 Test Requirements

Same test requirement as in clause 6.2A.1.2.3.5 in TS 38.521-2 [9] for the NR carriers.

- 6.2B.1.4\_1.4 UE Maximum Output Power for Inter-Band EN-DC including FR2 (5 NR CCs)
- 6.2B.1.4\_1.4.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (5 NR CCs) EIRP and TRP

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.1.4 in TS 38.521-2 is incomplete for power class 1, 2 and 4.
- Test Procedures for EIRP beam peak Extreme Conditions are FFS.
- Test Tolerances in the Test Requirement are FFS.

#### 6.2B.1.4\_1.4.1.1 Test purpose

Same test purpose as in clause 6.2.1.1.1 in TS 38.521-2 [9] for the NR carriers.

#### 6.2B.1.4 1.4.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5NR UL CCs.

#### 6.2B.1.4 1.4.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.1.3.

# 6.2B.1.4\_1.4.1.4 Test description

## 6.2B.1.4\_1.4.1.4.1 Initial condition

Same test description as in clause 6.2A.1.1.4.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.1.4\_1.4.1.5 Test Requirements

Same test requirement as in clause 6.2A.1.1.4.5 in TS 38.521-2 [9] for the NR carriers.

6.2B.1.4\_1.4.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (5 NR CCs) – Spherical Coverage

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.2.4 in TS 38.521-2 is incomplete for aggregated BW > 400MHz.
- The referred test case 6.2A.1.2.4 in TS 38.521-2 is incomplete for power class 1, 2 and 4.
- The referred test case 6.2A.1.2.4 in TS 38.521-2 is FFS for test configuration table.

#### 6.2B.1.4\_1.4.2.1 Test purpose

Same test purpose as in clause 6.2.1.2.1 in TS 38.521-2 [9] for the NR carriers.

#### 6.2B.1.4\_1.4.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5NR UL CCs.

## 6.2B.1.4\_1.4.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.2.3.

## 6.2B.1.4\_1.4.2.4 Test description

## 6.2B.1.4\_1.4.2.4.1 Initial condition

Same test description as in clause 6.2A.1.2.4.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.1.4\_1.4.2.5 Test Requirements

Same test requirement as in clause 6.2A.1.2.4.5 in TS 38.521-2 [9] for the NR carriers.

## 6.2B.1.4\_1.5 UE Maximum Output Power for Inter-Band EN-DC including FR2 (6 NR CCs)

# 6.2B.1.4\_1.5.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (6 NR CCs) - EIRP and TRP

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.1.5 in TS 38.521-2 is incomplete for power class 1, 2 and 4.
- Test Procedures for EIRP beam peak Extreme Conditions are FFS.
- Test Tolerances in the Test Requirement are FFS.

#### 6.2B.1.4\_1.5.1.1 Test purpose

Same test purpose as in clause 6.2.1.1.1 in TS 38.521-2 [9] for the NR carriers.

#### 6.2B.1.4\_1.5.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 6NR UL CCs.

# 6.2B.1.4\_1.5.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.1.3.

## 6.2B.1.4\_1.5.1.4 Test description

#### 6.2B.1.4\_1.5.1.4.1 Initial condition

Same test description as in clause 6.2A.1.1.5.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.1.4 1.5.1.5 Test Requirements

Same test requirement as in clause 6.2A.1.1.5.5 in TS 38.521-2 [9] for the NR carriers.

6.2B.1.4\_1.5.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (6 NR CCs) – Spherical Coverage

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.2A.1.2.5 in TS 38.521-2 is incomplete for aggregated BW > 400MHz.
- The referred test case 6.2A.1.2.5 in TS 38.521-2 is incomplete for power class 1, 2 and 4.
- The referred test case 6.2A.1.2.5 in TS 38.521-2 is FFS for test configuration table.

#### 6.2B.1.4 1.5.2.1 Test purpose

Same test purpose as in clause 6.2.1.2.1 in TS 38.521-2 [9] for the NR carriers.

#### 6.2B.1.4\_1.5.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 6NR UL CCs.

#### 6.2B.1.4\_1.5.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.1.4.2.3.

## 6.2B.1.4\_1.5.2.4 Test description

#### 6.2B.1.4 1.5.2.4.1 Initial condition

Same test description as in clause 6.2A.1.2.5.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.1.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.1.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.1.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.1.4\_1.5.2.5 Test Requirements

Same test requirement as in clause 6.2A.1.2.5.5 in TS 38.521-2 [9] for the NR carriers.

# 6.2B.1.4D UE Maximum Output Power for Inter-Band EN-DC including FR2 for UL MIMO

# 6.2B.1.4D.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.2D.1.1 in TS 38.521-2 [9] is incomplete

#### 6.2B.1.4D.1.1 Test purpose

Same test purpose as in clause 6.2D.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.1.4D.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with UL MIMO.

## 6.2B.1.4D.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2D.1.1 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.2B.1.4.

#### 6.2B.1.4D.1.4 Test description

Same test description as in clause 6.2D.1.1 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.2D.1.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

[Step 6] of Initial conditions as in clause 6.2D.1.1 in TS 38.521-2 [9] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.6.

# 6.2B.1.4D.1.5 Test requirement

Same test requirement as in clause 6.2D.1.5 of TS 38.521-2 [9] for the NR carrier.

# 6.2B.1.4D.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 for UL MIMO-Spherical coverage

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.2D.1.2 in TS 38.521-2 [9] is incomplete

# 6.2B.1.4D.2.1 Test purpose

Same test purpose as in clause 6.2D.1.2 in TS 38.521-2 [9] for the NR carrier.

#### 6.2B.1.4D.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with UL MIMO.

## 6.2B.1.4D.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2D.1.2 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.2B.1.4.

#### 6.2B.1.4D.2.4 Test description

Same test description as in clause 6.2D.1.2 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.2D.1.2 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

[Step 6] of Initial conditions as in clause 6.2D.1.2 in TS 38.521-2 [9] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.2B.1.4D.2.5 Test requirement

Same test requirement as in clause 6.2D.1.2 of TS 38.521-2 [9] for the NR carrier.

# 6.2B.1.5 UE Maximum Output Power for Inter-Band EN-DC including both FR1 and FR2

#### 6.2B.1.5.1 Test purpose

Same test purpose as in clause 6.2.1.1 in TS 38.521-1 [8] for NR FR1 carrier and 6.2.1.1 in TS 38.521-2 [9] for NR FR2 carrier.

# 6.2B.1.5.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for maximum output power apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 6.2B.

# 6.2B.1.5D UE Maximum Output Power for Inter-Band EN-DC including both FR1 and FR2 for UL MIMO

#### 6.2B.1.5D.1 Test purpose

Same test purpose as in clause 6.2.1.1 in TS 38.521-1 [8] for NR FR1 carrier and 6.2.1.1 in TS 38.521-2 [9] for NR FR2 carrier.

#### 6.2B.1.5D.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for maximum output power apply and are tested as part of the EN-DC within FR1 as in clause 6.2.1 in TS 38.521-1 [8] and EN-DC within FR2 as in clause 6.2.1 in TS 38.521-2 [9].

# 6.2B.2 UE Maximum Output Power reduction for EN-DC

# 6.2B.2.0 General

The UE maximum output power reduction (MPR) specified in this clause is applicable for UEs configured with EN-DC when NS\_01 is indicated in the MCG and the SCG. The MPR applies subject to indication in the field *modifiedMPRbehavior* for the SCG [2].

# 6.2B.2.1 UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC

#### 6.2B.2.1.1 Test purpose

Same test purpose as in clause 6.2.2.1 in TS 38.521-1 [8] for the NR carrier.

## 6.2B.2.1.2 Test applicability

This test case applies to all types of E-UTRA power class 3 and power class 2 UE release 15 and forward, supporting intra-band contiguous EN-DC.

NOTE: Test execution is not necessary if clause 6.5B.2.1.3 ACLR is executed since MPR requirement is verified in this test case.

#### 6.2B.2.1.3 Minimum conformance requirements

#### 6.2B.2.1.3.1 General

When the UE is configured for intra-band contiguous EN-DC, the UE determines the total allowed maximum output power reduction as specified in this clause.

For UE supporting dynamic power sharing the following:

- for the MCG, MPR<sub>c</sub> in accordance with TS 36.101 [5]
- for the SCG,

 $MPR'_c = MPR_{NR} = MAX(MPR_{single,NR}, MPR_{ENDC})$ 

- for the total configured transmission power,

 $MPR_{tot} = P_{PowerClass,EN-DC} - min(P_{PowerClass,EN-DC}, 10*log_{10}(10^{\land}((P_{PowerClass,E-UTRA} - MPR_{E-UTRA})/10) + 10^{\land}((P_{PowerClass,NR} - MPR_{NR})/10))$ 

where

 $MPR_{E-UTRA} = MAX(MPR_{single,E-UTRA}, MPR_{ENDC})$ 

with

- MPR<sub>single, E-UTRA</sub> is the MPR defined for the E-UTRA transmission in TS 36.101 [5]
- MPR<sub>single,NR</sub> is the MPR defined for the NR transmission in TS 38.101-1 [2]

For UEs not supporting dynamic power sharing the following

- for the MCG,

 $MPR_c = MAX(MPR_{single,E-UTRA}, MPR_{ENDC})$ 

- for the SCG,

 $MPR'_c = MAX(MPR_{single,NR}, MPR_{ENDC})$ 

where

- MPR<sub>single,NR</sub> is the MPR defined for the NR transmission in TS 38.101-1 [2]
- MPR<sub>single,E-UTRA</sub> is the MPR defined for the E-UTRA transmission in TS 36.101 [5]

MPR<sub>ENDC</sub> is defined in Clause 6.2B.2.1.3.2.

#### 6.2B.2.1.3.2 MPR for power class 3 and power class 2

MPR in this subclause is applicable for power class 3 and power class 2 UEs indicating IE *dualPA-Architecture* supported with ENDC power class being the same as the E-UTRA and NR power class, otherwise the UE can use as much MPR as needed to fulfil emissions requirements when scheduled with dual uplink transmission. For UEs scheduled with single uplink transmission, MPR in subclause 6.2.4 of TS 36.101 [5] and 6.2.2 of TS 38.101-1 [2] apply. For a UE supporting dynamic power sharing for DC\_(n)71AA for which dual simultaneous uplink transmissions are mandatory and A-MPR defined in subclause 6.2B.3.1.1 is applied as MPR. The allowed maximum output power reduction for IM3 related emissions applied to transmission on the MCG and the SCG is defined as follows:

 $MPR_{ENDC} = M_A$ 

Where MA is defined as follows

$$M_A = 15; 0 \le B < 0.5$$

10; 
$$0.5 \le B < 1.0$$

8; 
$$1.0 \le B < 2.0$$

6; 
$$2.0 < B$$

Where:

For UEs supporting dynamic power sharing,

$$B = (L_{CRB\_alloc, E-UTRA} * 12* SCS_{E-UTRA} + L_{CRB\_alloc,NR} * 12* SCS_{NR})/1,000,000$$

For UEs not supporting dynamic power sharing,

For E-UTRA

$$B = (L_{CRB alloc, E-UTRA} * 12* SCS_{E-UTRA} + 12* SCS_{NR})/1,000,000$$

Where  $SCS_{NR} = 15$  kHz is assumed in calculation of B.

For NR

$$B = (12*SCS_{E-UTRA} + L_{CRB\_alloc,NR} * 12 * SCS_{NR})/1,000,000$$

Where  $SCS_{E-UTRA} = 15$  kHz is assumed in calculation of B.

and  $M_A$  is reduced by 1 dB for B < 2.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.2.1.

Exception requirements for both NR and E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR. LTE anchor agnostic approach is not applied for this case. E-UTRA test point analysis is included and E-UTRA measurements are performed.

No exception requirements for NR or E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR, for a UE that supports dynamic power sharing. LTE anchor agnostic approach is not applied for this case based on the test point analysis in TS 38.905 [7].

6.2B.2.1.4 Test description

6.2B.2.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and test channel bandwidths based on NR operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.4B.2.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521.1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.2B.2.1.4.1-1: Test configuration table

Initial	Condition	ons									
Test E	Environm	ent			Normal TI	Λ/Ι ΤΙΛ/ <b>Ι</b> Ι ΤΙΛ/Ι	TU//U				
			08-1 [6] c	lause 4.1.	Normal, TL/VL, TL/VH, TH/VL, TH/VH						
	requenc		18-1 [6] c	lause 4 3 1	Low range, High range						
Test E	s specified in TS 38.508-1 [6] clause 4.3.1. est EN-DC bandwidth combination as pecified in Table 5.3B.1.2-1.			Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (Note 2)							
Test S	SCS for the	ne NR ce	ll as spe	cified in	Lowest, Hig	ahest					
	3.521-1 [8 Paramete		5.3.5-1.		2011001, 1115	y. 1001					
Test	Freq	ChB	SCS	Downlink	EN-DC Upl	ink Configuratio	n				
ID		w		Configurati on	E-UTRA C		NR Cell		Comm on		
					Modulati on	RB allocation (Note 5)	Modulati on	RB allocation (NOTE 1)	Power config (NOTE 8)		
1	Defau It				16QAM	Outer_Full	DFT-s- OFDM Pi/2 BPSK	Outer_Full	В		
2 (Not e 3)	Defau It				16QAM	Outer_1RB_L eft	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Ri ght	В		
3 (Not e 3)	Low				16QAM	Outer_1RB_L eft	DFT-s- OFDM Pi/2 BPSK	N/A	A		
4 (Not e 3)	High				16QAM	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Ri ght	A		
5 (Not e 4)	Defau It				16QAM	Outer_1RB_Ri ght	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Le ft	В		
6 (Not e 4)	Low				16QAM	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Le ft	A		
7 (Not e 4)	High	Defau It	Defau It	N/A	16QAM	Outer_1RB_Ri ght	DFT-s- OFDM Pi/2 BPSK	N/A	A		
8	Defau It				16QAM	Outer_Full	DFT-s- OFDM QPSK	Outer_Full	В		
9 (Not e 3)	Defau It				16QAM	Outer_1RB_L eft	DFT-s- OFDM QPSK	Edge_1RB_Ri ght	В		
10 (Not e 3)	Low				16QAM	Outer_1RB_L eft	DFT-s- OFDM QPSK	N/A	A		
11 (Not e 3)	High				16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Ri ght	A		
12 (Not e 4)	Defau It				16QAM	Outer_1RB_Ri ght	DFT-s- OFDM QPSK	Edge_1RB_Le ft	В		
13 (Not e 4)	Low				16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Le ft	A		
14 (Not e 4)	High				16QAM	Outer_1RB_Ri ght	DFT-s- OFDM QPSK	N/A	A		

4.5		1	400414	ı	DET	I	
15	Defau It		16QAM	Outer_Full	DFT-s- OFDM 16QAM	Outer_Full	В
16 (Not e 3)	Defau It		16QAM	Outer_1RB_L eft	DFT-s- OFDM 16QAM	Edge_1RB_Ri ght	В
17 (Not e 3)	Low		16QAM	Outer_1RB_L eft	DFT-s- OFDM 16QAM	N/A	Α
18 (Not e 3)	High		16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Ri ght	А
19 (Not e 4)	Defau It		16QAM	Outer_1RB_Ri	DFT-s- OFDM 16QAM	Edge_1RB_Le	В
20 (Not e 4)	Low		16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Le ft	A
21 (Not e 4)	High		16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 16QAM	N/A	A
22	Defau It		16QAM	Outer_Full	DFT-s- OFDM 64QAM	Outer_Full	В
23 (Not e 3)	Low		16QAM	Outer_1RB_L eft	DFT-s- OFDM 64QAM	Edge_1RB_Ri ght	В
24 (Not e 4)	High		16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 64QAM	Edge_1RB_Le ft	В
25	Defau It		16QAM	Outer_Full	DFT-s- OFDM 256QAM	Outer_Full	В
26 (Not e 3)	Low		16QAM	Outer_1RB_L eft	DFT-s- OFDM 256QAM	Edge_1RB_Ri ght	В
27 (Not e 4)	High		16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 256QAM	Edge_1RB_Le ft	В
28	Defau It		16QAM	Outer_Full	CP- OFDM QPSK	Outer_Full	В
29 (Not e 3)	Defau It		16QAM	Outer_1RB_L eft	CP- OFDM QPSK	Edge_1RB_Ri ght	В
30 (Not e 3)	Low		16QAM	Outer_1RB_L eft	CP- OFDM QPSK	N/A	A
31 (Not e 3)	High		16QAM	N/A	CP- OFDM QPSK	Edge_1RB_Ri ght	A
32 (Not e 4)	Defau It		16QAM	Outer_1RB_Ri ght	CP- OFDM QPSK	Edge_1RB_Le ft	В
33 (Not e 4)	Low		16QAM	N/A	CP- OFDM QPSK	Edge_1RB_Le ft	A
34 (Not e 4)	High		16QAM	Outer_1RB_Ri ght	CP- OFDM QPSK	N/A	A
35	Defau It		16QAM	Outer_Full	CP- OFDM 16QAM	Outer_Full	В
36 (Not e 3)	Defau It		16QAM	Outer_1RB_L eft	CP- OFDM 16QAM	Edge_1RB_Ri ght	В

37 (Not e 3)	Low	16QAM	Outer_1RB_L eft	CP- OFDM 16QAM	N/A	A
38 (Not e 3)	High	16QAM	N/A	CP- OFDM 16QAM	Edge_1RB_Ri ght	A
39 (Not e 4)	Defau It	16QAM	Outer_1RB_Ri ght	CP- OFDM 16QAM	Edge_1RB_Le ft	В
40 (Not e 4)	Low	16QAM	N/A	CP- OFDM 16QAM	Edge_1RB_Le ft	Α
41 (Not e 4)	High	16QAM	Outer_1RB_Ri ght	CP- OFDM 16QAM	N/A	A
42	Defau It	16QAM	Outer_Full	CP- OFDM 64QAM	Outer_Full	В
43 (Not e 3)	Low	16QAM	Outer_1RB_L eft	CP- OFDM 64QAM	Edge_1RB_Ri ght	В
44 (Not e 4)	High	16QAM	Outer_1RB_Ri ght	CP- OFDM 64QAM	Edge_1RB_Le ft	В
45	Defau It	16QAM	Outer_Full	CP- OFDM 256QAM	Outer_Full	В
46 (Not e 3)	Low	16QAM	Outer_1RB_L eft	CP- OFDM 256QAM	Edge_1RB_Ri ght	В
47 (Not e 4)	High	16QAM	Outer_1RB_Ri ght	CP- OFDM 256QAM	Edge_1RB_Le ft	В
48 (Not e 4)	Defau It	16QAM	Edge_Full_Rig ht	CP- OFDM 256QAM	Edge_Full_Lef t	В

- NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].
- NOTE 2: If the UE supports multiple CC combinations in the EN-DC configuration with the same N<sub>RB\_agg</sub>, select the combination to test as follows:
  - Lowest ENBW: NR component with lowest N<sub>RB</sub> is tested.
  - Highest ENBW: NR component with highest N<sub>RB</sub> is tested.
- NOTE 3: Applicable when E-UTRA cell carrier frequency is lower than NR cell carrier.
- NOTE 4: Applicable when NR cell carrier frequency is lower than E-UTRA cell carrier.
- NOTE 5: Outer\_Full defined as the transmission bandwidth configuration N<sub>RB</sub> per channel bandwidth for the E-UTRA component as indicated in TS 36.521 [10] Table 5.4.2-1. Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Edge\_Full\_Right is defined as 2 RBs allocated at the right edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component.
- NOTE 6: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in FR1
- NOTE 7: Test IDs with simultaneous E-UTRA and NR UL transmission only apply for UEs indicating dualPA-
- NOTE 8: Power config as specified in Table 6.2B.2.1.4.3-3 and Table 6.2B.2.1.4.3-4 for PC3 UE or Table 6.2B.2.1.4.3-5 and Table 6.2B.2.1.4.3-6 for PC2 UE.
- NOTE 9: Test IDs with simultaneous E-UTRA and NR UL transmission don't apply to DC\_(n)71AA for a UE supporting dynamic power sharing (A-MPR is applied as MPR and covered by 6.2B.3.1.1).
  - 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1 for TE diagram and clause A.3.2.1 for UE diagram.
  - 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.

- 4. NR downlink signals are initially set up according to Annex C.0, C.1, and C.2 and uplink signals according to Annex G.0, G.1, G.2, and G.3.0 of TS 38.521-1 [8].
- 5. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.2.1.4.3.
- 8. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

## 6.2B.2.1.4.2 Test procedure

- 1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.2B.2.1.4.1-1 on E-UTRA CC and NR CC respectively. For test points configured with message in Table 6.2B.2.1.4.3-7, NR SS only schedules UL RMC on NR slots that does not overlap with E-UTRA uplink subframe. Since the UL has no payload and no loopback data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command starting in this step for the UE to reach  $P_{UMAX}$  level.
- 3. For a UE supporting dynamic power sharing, measure the mean power over all component carriers. For a UE not supporting dynamic power sharing, measure the power of each component carrier individually. For the tested EN-DC configuration, the requirements described in clause 6.2B.2.1.5 shall be met. The period of the measurement shall be at least the continuous duration of one active sub-frame (1ms). For TDD slots with transient periods are not under test.
- 4. For UEs supporting Power Class 2, repeat steps 1~3 for Test ID 25 and 45 in Table 6.2B.2.1.4.1-1 on the applicable bands with message exception defined in Table 6.2B.2.1.4.3-7.
- NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration table 6.2B.2.1.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

#### 6.2B.2.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1 with the following exceptions:

## Table 6.2B.2.1.4.3-1: Additional Spectrum Emission for MCG

	Derivation Path: 36.508 [11] clause 4.6.3, Table 4.4.3.3-1					
Information Element Value/remark Comment Conditi						
Γ	AdditionalSpectrumEmission	0 (NS_01)				

#### Table 6.2B.2.1.4.3-2: Additional Spectrum Emission for SCG

Derivation Path: 38.508-1 [5] clause 4.6.3, Table 4.6.3-1						
Information Element	Value/remark	Comment	Condition			
AdditionalSpectrumEmission	0 (NS_01)					

# Table 6.2B.2.1.4.3-3: PhysicalCellGroupConfig for PC3

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106							
Information Element	Value/remark	Comment	Condition				
p-NR-FR1	23		Power config A (NOTE 1)				
	20		Power config B (NOTE 2)				
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.  NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.							

# Table 6.2B.2.1.4.3-4: RRCConnectionReconfiguration: nr-Config-r15 for PC3

Information Element	Value/remark	Comment	Condition				
p-MaxEUTRA-r15	23		Power				
			config A				
			(NOTE 1)				
	20		Power				
			config B				
			(NOTE 2)				
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.							
NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.							

# Table 6.2B.2.1.4.3-5: PhysicalCellGroupConfig for PC2

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106							
Information Element	Value/remark	Comment	Condition				
p-NR-FR1	26		Power config A (NOTE 1)				
	23		Power config B (NOTE 2)				
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.  NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.							

# Table 6.2B.2.1.4.3-6: RRCConnectionReconfiguration: nr-Config-r15 for PC2

Derivation Path: TS 36.508 [11], Table 4.6.	1-8					
Information Element	Value/remark	Comment	Condition			
p-MaxEUTRA-r15	26		Power config A (NOTE 1)			
	23		Power config B (NOTE 2)			
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.  NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.						

# 6.2B.2.1.4.3-7: RRCConnectionReconfiguration: p-MaxUE-FR1-r15 (step 4 in 6.2B.2.1.4.2)

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
nonCriticalExtension SEQUENCE {		RRCConnectionReconfig uration-v1530-IEs	
p-MaxUE-FR1-r15	23		Power Class 2 UE
}			

Table 6.2B.2.1.4.3-8: RRCConnectionReconfiguration: tdm-PatternConfig if operating on FDD band

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 ::= CHOICE{			Power config A (NOTE 1)
setup :: = SEQUENCE {		Apply if operating on FDD band for a UE NOT indicating support of dynamicPowerSharing in the <i>UE-MRDC-Capability</i> IE according to TS 38.213 [x] clause 7.6.1	
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			
NOTE 1: Applies when E-UTRA UL transmission no	t overlapping with	NR UL transmission in time.	

6.2B.2.1.4.3-9: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD	
		band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

# 6.2B.2.1.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the UE Power Class, the nominal maximum output power and tolerance in Table 6.2B.2.1.5-1 ~ Table 6.2B.2.1.5-6a.

The maximum output power, derived in step 4 shall be within the range prescribed by Power Class 3, the nominal maximum output power and tolerance in Table  $6.2B.2.1.5-1 \sim Table 6.2B.2.1.5-3a$ .

Table 6.2B.2.1.5-1: UE Power Class 3 test requirements, UE supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MPR <sub>tot</sub> (dB)	P <sub>EN-DC</sub> , tot_L (dBm)	P <sub>EN-DC</sub> , tot_H (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	THIGH (PCMAX_H) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22,	15, 30,	3.0	20.0	23.0	6.0	2.0		
25, 28, 35, 42,	60						25.0 + TT	14.0 - TT
45 (NOTE 1)								
2, 5, 9, 12, 16,	15	11.0	12.0	23.0	6.0	2.0	25.0 + TT	6.0 - TT
19, 23, 24, 26,								
27, 29, 32, 36,								
39, 43, 44, 46,								
47 (NOTE 2)								
	30, 60	6.0	17.0	23.0	5.0	2.0	25.0 + TT	12.0 - TT
48 (NOTE 3)	15	7.0	16.0	23.0	5.0	2.0	25.0 + TT	11.0 - TT
	30, 60	5.0	18.0	23.0	5.0	2.0	25.0 + TT	13.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply. NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.1.5-2: UE Power Class 3 test requirements, UE with/without supporting dynamic power sharing, E-UTRA UL transmission not overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MPR (dB)	P <sub>CMAX, L</sub> (dBm)	P <sub>CMAX, H</sub> (dBm)	T <sub>LOW</sub> (P <sub>CMAX L</sub> (dB)	T <sub>HIGH</sub> (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41 (NOTE 1)	N/A	1.0	22.0	23.0	2.0	2.0	25.0 + TT	20.0 - TT
4, 6 (NOTE 2)	15, 30, 60	3.5	19.5	23.0	2.0	2.0	25.0 + TT	17.5 - TT
11, 13 (NOTE 2)	15, 30, 60	1	22.0	23.0	2.0	2.0	25.0 + TT	20.0 - TT
18, 20 (NOTE 2)	15, 30, 60	2	21.0	23.0	2.0	2.0	25.0 + TT	19.0 - TT
31,33, 38, 40 (NOTE 2)	15, 30, 60	3	20.0	23.0	2.0	2.0	25.0 + TT	18.0 - TT

NOTE 1: Test configuration IDs without transmission overlap with E-UTRA allocation, MPR requirements in TS 36.101 [4] apply.

NOTE 2: Test configuration IDs without transmission overlap with NR allocation, MPR requirements in TS 38.101-1 [2]

Table 6.2B.2.1.5-3: UE Power Class 3 E-UTRA carrier test requirements, UE not supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MCG MPR <sub>c</sub> (dB)	P <sub>CMAX, L</sub> (dBm)	Р <sub>смах, н</sub> (dВm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	Thigh (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22, 25, 28, 35, 42,	15, 30, 60	6.0	17.0	20.0	5.0	2.5	22.5 + TT	12.0 - TT
45 (NOTE 1)	00						22.5 + 11	12.0 - 11
2, 5, 9, 12, 16, 19, 23, 24, 26,	15, 30, 60	14.0	9.0	20.0	6.0	2.5	22.5 + TT	3.0 - TT
27, 29, 32, 36,	00							
39, 43, 44, 46,								
47 (NOTE 2)								
48 (NOTE 3)	15, 30, 60	9.0	14.0	20.0	5.0	2.5	22.5 + TT	9.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply. NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.1.5-3a: UE Power Class 3 NR carrier test requirements, UE not supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	SCG MPR'c (dB)	P <sub>CMAX, L</sub> (dBm)	P <sub>CMAX, H</sub> (dBm)	T <sub>LOW</sub> (Pcmax_L) (dB)	T <sub>HIGH</sub> (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22,	15, 30,	6.0	17.0	20.0	5.0	2.5		
25, 28, 35, 42,	60						22.5 + TT	12.0 - TT
45 (NOTE 1)								
2, 5, 9, 12, 16,	15	14.0	9.0	20.0	6.0	2.5		
19, 23, 24, 26,								
27, 29, 32, 36,							22.5 + TT	3.0 - TT
39, 43, 44, 46,								
47 (NOTE 2)								
	30, 60	9.0	14.0	20.0	5.0	2.5	22.5 + TT	9.0- TT
48 (NOTE 3)	15, 30	9.0	14.0	20.0	5.0	2.5	22.5 + TT	9.0- TT
	60	7.0	16.0	20.0	5.0	2.5	22.5 + TT	11.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.1.5-4: UE Power Class 2 test requirements, UE supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MPR <sub>tot</sub> (dB)	P <sub>EN-DC</sub> , tot_L (dBm)	P <sub>EN-DC</sub> , tot_H (dBm)	T <sub>LOW</sub> (Pcmax_L) (dB)	Thigh (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22,	15, 30,	3.0	23.0	26.0	3.0	2.0		
25, 28, 35, 42,	60						28.0 + TT	20.0 - TT
45 (NOTE 1)								
2, 5, 9, 12, 16,	15	11.0	15.0	26.0	6.0	2.0	28.0 + TT	9.0 - TT
19, 23, 24, 26,								
27, 29, 32, 36,								
39, 43, 44, 46,								
47 (NOTE 2)								
	30, 60	6.0	20.0	26.0	6.0	2.0	28.0 + TT	14.0 - TT
48 (NOTE 3)	15	7.0	19.0	26.0	5.0	2.0	28.0 + TT	14.0 - TT
	30, 60	5.0	21.0	26.0	5.0	2.0	28.0 + TT	16.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.1.5-5: UE Power Class 2 test requirements, UE with/without supporting dynamic power sharing, E-UTRA UL transmission not overlapping with NR UL transmission (Rel-15 UE indicates PC2 on NR band Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC2 or Not present by powerClassNRPart-r16))

Configuration ID	Test SCS (kHz)	MPR (dB)	P <sub>CMAX, L</sub> (dBm)	Р <sub>смах, н</sub> (dВm)	TLOW (P <sub>CMAX L</sub> (dB)	Thigh (P <sub>CMAX_</sub> h) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41 (NOTE 1)	N/A	1.0	25.0	26.0	2.0	2.0	28.0 + TT	23.0 - TT
4, 6 (NOTE 2)	15, 30, 60	3.5	22.5	26.0	2.0	2.0	28.0 + TT	20.5 - TT
11, 13 (NOTE 2)	15, 30, 60	3.5	22.5	26.0	2.0	2.0	28.0 + TT	20.5 - TT
18, 20 (NOTE 2)	15, 30, 60	3.5	22.5	26.0	2.0	2.0	28.0 + TT	20.5 - TT
31,33, 38, 40 (NOTE 2)	15, 30, 60	3.5	22.5	26.0	2.0	2.0	28.0 + TT	20.5 - TT

NOTE 1: Test configuration IDs without transmission overlap with E-UTRA allocation, MPR requirements in TS 36.101 [4] apply.

NOTE 2: Test configuration IDs without transmission overlap with NR allocation, MPR requirements in TS 38.101-1 [2] apply.

Table 6.2B.2.1.5-5a: UE Power Class 2 test requirements, UE with/without supporting dynamic power sharing, E-UTRA UL transmission not overlapping with NR UL transmission (Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC3 by powerClassNRPart-r16))

Configuration ID	Test SCS (kHz)	MPR (dB)	P <sub>CMAX, L</sub> (dBm)	P <sub>CMAX, H</sub> (dBm)	T <sub>LOW</sub> (P <sub>CMAX L</sub> (dB)	T <sub>HIGH</sub> (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41 (NOTE 1)	N/A	1.0	25.0	26.0	2.0	2.0	28.0 + TT	23.0 - TT
4, 6 (NOTE 2)	15, 30, 60	0.5	22.5	23.0	2.0	2.0	25.0 + TT	20.5 - TT
11, 13 (NOTE 2)	15, 30, 60	1.0	22.0	23.0	2.0	2.0	25.0 + TT	20.0 - TT
18, 20 (NOTE 2)	15, 30, 60	2.0	21.0	23.0	2.0	2.0	25.0 + TT	19.0 - TT
31,33, 38, 40 (NOTE 2)	15, 30, 60	3.0	20.0	23.0	2.5	2.0	25.0 + TT	17.5 - TT

NOTE 1: Test configuration IDs without transmission overlap with NR allocation, MPR requirements in TS 36.101 [4] apply.

NOTE 2: Test configuration IDs without transmission overlap with E-UTRA allocation, MPR requirements in TS 38.101-1 [2] apply.

Table 6.2B.2.1.5-6: UE Power Class 2 E-UTRA carrier test requirements, UE not supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MCG MPR <sub>c</sub> (dB)	P <sub>CMAX, L</sub> (dBm)	P <sub>CMAX, H</sub> (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	T <sub>HIGH</sub> (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22, 25, 28, 35, 42, 45 (NOTE 1)	15, 30, 60	6.0	20.0	23.0	2.5	2.0	25.0 + TT	17.5 - TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (NOTE 2)	15, 30, 60	14.0	12.0	23.0	6.0	2.0	25.0 + TT	6.0 - TT
48 (NOTE 3)	15, 30, 60	9.0	17.0	23.0	5.0	2.0	25.0 + TT	12.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.1.5-6a: UE Power Class 2 NR carrier test requirements, UE not supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	SCG MPR'c (dB)	P <sub>CMAX, L</sub> (dBm)	Р <sub>СМАХ, Н</sub> (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	THIGH (PCMAX_H) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22,	15, 30,	6.0	20.0	23.0	2.5	2.0	25 0 . TT	47.5 TT
25, 28, 35, 42, 45 (NOTE 1)	60						25.0 + TT	17.5 - TT
2, 5, 9, 12, 16,	15	14.0	12.0	23.0	6.0	2.0		
19, 23, 24, 26,							05 0 . TT	0 0 TT
27, 29, 32, 36,							25.0 + TT	6.0 - TT
39, 43, 44, 46, 47 (NOTE 2)								
	30, 60	9.0	17.0	23.0	5.0	2.0	25.0 + TT	12.0 - TT
48 (NOTE 3)	15, 30	9.0	17.0	23.0	5.0	2.0	25.0 + TT	12.0 - TT
	60	7.0	19.0	23.0	3.5	2.0	25.0 + TT	15.5 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.1.5-7: Test Tolerance

	f ≤ 3.0GHz	3.0GHz < f ≤ 6GHz
BW ≤ 40MHz	0.7	1.0
40MHz < BW ≤ 100MHz	1.0	1.0

# 6.2B.2.2 UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC

## 6.2B.2.2.1 Test purpose

Same test purpose as in clause 6.2B.2.1.1.

## 6.2B.2.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

NOTE: Test execution is not necessary if clause 6.5B.2.2.3 ACLR is executed since MPR requirement is verified in this test case.

## 6.2B.2.2.3 Minimum conformance requirements

#### 6.2B.2.2.3.1 General

When the UE is configured for intra-band non-contiguous EN-DC, the UE determines the total allowed maximum output power reduction as specified in this subclause.

For UE supporting dynamic power sharing the following:

- for the MCG, MPR<sub>c</sub> in accordance with TS 36.101 [4]
- for the SCG,

$$MPR'_c = MPR_{NR} = MAX(MPR_{single,NR}, MPR_{ENDC})$$

- for the total configured transmission power,

$$\begin{aligned} MPR_{tot} &= P_{PowerClass,EN-DC} - min(P_{PowerClass,EN-DC}, 10*log_{10}(10^{\wedge}((P_{PowerClass,E-UTRA} - MPR_{E-UTRA})/10) + 10^{\wedge}((P_{PowerClass,NR} - MPR_{NR})/10)) \end{aligned}$$

where

$$MPR_{E-UTRA} = MAX(MPR_{single,E-UTRA}, MPR_{ENDC})$$

with

- $MPR_{single, E-UTRA}$  is the MPR defined for the E-UTRA transmission in TS 36.101 [4]
- MPR<sub>single,NR</sub> is the MPR defined for the NR transmission in TS 38.101-1 [2]

For UEs not supporting dynamic power sharing the following

- for the MCG,

$$MPR_c = MAX(MPR_{single,E-UTRA}, MPR_{ENDC})$$

- for the SCG,

$$MPR'_c = MAX(MPR_{single,NR}, MPR_{ENDC})$$

where

- MPR<sub>single,NR</sub> is the MPR defined for the NR transmission in TS 38.101-1 [2]
- MPR<sub>single,E-UTRA</sub> is the MPR defined for the E-UTRA transmission in TS 36.101 [4]

MPR<sub>ENDC</sub> is defined in Clause 6.2B.2.2.3.2.

6.2B.2.2.3.2 MPR for power class 3 and power class 2

MPR in this subclause is applicable for power class 3 and power class 2 UEs indicating IE *dualPA-Architecture* supported with ENDC power class being the same as the E-UTRA and NR power class, otherwise the UE can use as much MPR as needed to fulfil emissions requirements when scheduled with dual uplink transmission. For UEs scheduled with single uplink transmission, MPR in subclause 6.2.4 of TS 36.101 [5] and 6.2.3 of TS 38.101-1 [2] apply. The allowed maximum output power reduction for IM3 related emissions applied to transmission on the MCG and the SCG is defined as follows:

$$MPR_{ENDC} = M_A$$

Where MA is defined as follows

$$M_A = \quad 18 \ ; \quad 0 \le B < 1.0$$
 
$$17 \ ; \quad 1.0 \le B < 2.0$$

16;  $2.0 \le B < 5.0$ 

15;  $5.0 \le B$ 

Where:

For UEs supporting dynamic power sharing,

$$B = (L_{CRB\ alloc,\ E-UTRA} * 12*SCS_{E-UTRA} + L_{CRB\ alloc,NR} * 12*SCS_{NR})/1,000.000$$

For UEs not supporting dynamic power sharing,

For E-UTRA

$$B = (L_{CRB\_alloc, E-UTRA} * 12* SCS_{E-UTRA} + 12* SCS_{NR})/1,000.000$$

Where  $SCS_{NR} = 15$  kHz is assumed in calculation of B.

For NR

$$B = (12 * SCS_{E-UTRA} + L_{CRB\_alloc,NR} * 12 * SCS_{NR})/1,000.000$$

Where SCS<sub>E-UTRA</sub> = 15 kHz is assumed in calculation of B.

and  $M_A$  is reduced by 1 dB for B < 2.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.2.2.

Exception requirements for both NR and E-UTRA are defined for this test when transmission on E-UTRA overlap in time with NR. LTE anchor agnostic approach is not applied for this case. E-UTRA test point analysis is included and E-UTRA measurements are performed.

No exception requirements for NR or E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR. LTE anchor agnostic approach is not applied for this case based on the test point analysis in TS 38.905 [7].

6.2B.2.2.4 Test description

6.2B.2.2.4.1 Initial conditions

Same initial conditions as described in clause 6.2B.2.1.4.1 for both E-UTRA and NR carriers with the following exception:

- Instead of Table 6.2B.2.1.4.1-1 --> use Table 6.2B.2.2.4.1-1.

Table 6.2B.2.2.4.1-1: Test Configuration Table

Initia	Initial Conditions										
	Test Environment as specified in TS 38.508-1 [6] clause 4.1.					Normal, TL/VL, TL/VH, TH/VL, TH/VH					
Test TS 38	Test Frequencies as specified in TS 38.508 [7] clause 4.3.1 for different DC bandwidth classes					Low with maxWgap (NR low – E-UTRA high); High with maxWgap (E-UTRA low – NR high)					
	Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1.					Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (Note 2)					
	Test SCS for the NR cell as specified in TS 38.521-1 [8] Table 5.3.5-1.				Lowest, Highest						
Test	<b>Paramet</b>	ers									
Tes	Freq	ChB	SCS	Downlink	EN-DC Uplink Configuration						
t ID	-	w		Configurati	E-UTRA Co	ell	NR Cell		Comm		
				on					on		
					Modulati on	RB allocation (Note 3)	Modulati on	RB allocation (NOTE 1)	Power config (NOTE 6)		

			1	1	ODOK		DET -	I	Б			
1	Defau It				QPSK	Outer_Full	DFT-s- OFDM Pi/2 BPSK	Outer_Full	В			
2	High				QPSK	Outer_1RB_Le ft	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Ri ght	В			
3	High				QPSK	Outer_1RB_Le ft	DFT-s- OFDM Pi/2 BPSK	N/A	A			
4	High				QPSK	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Ri ght	A			
5	Low				QPSK	Outer_1RB_Ri ght	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Le ft	В			
6	Low				QPSK	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Le ft	A			
7	Low				QPSK	Outer_1RB_Ri ght	DFT-s- OFDM Pi/2 BPSK	N/A	A			
8	Defau It							QPSK	Outer_Full	DFT-s- OFDM QPSK	Outer_Full	В
9	High	Defau	Defau	N/A	QPSK	Outer_1RB_Le ft	DFT-s- OFDM QPSK	Edge_1RB_Ri ght	В			
10	High	lt	lt		QPSK	Outer_1RB_Le ft	DFT-s- OFDM QPSK	N/A	A			
11	High				QPSK	N/A	DFT-s- OFDM QPSK	Edge_1RB_Ri ght	A			
12	Low				QPSK	Outer_1RB_Ri ght	DFT-s- OFDM QPSK	Edge_1RB_Le ft	В			
13	Low				QPSK	N/A	DFT-s- OFDM QPSK	Edge_1RB_Le ft	А			
14	Low				QPSK	Outer_1RB_Ri ght	DFT-s- OFDM QPSK	N/A	А			
15	Defau It				16QAM	Outer_Full	DFT-s- OFDM 16QAM	Outer_Full	В			
16	High				16QAM	Outer_1RB_Le ft	DFT-s- OFDM 16QAM	Edge_1RB_Ri ght	В			
17	High				16QAM	Outer_1RB_Le ft	DFT-s- OFDM 16QAM	N/A	A			
18	High				16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Ri ght	A			
19	Low				16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 16QAM	Edge_1RB_Le ft	В			
20	Low				16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Le ft	А			

		<del>,                                      </del>					
21	Low		16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 16QAM	N/A	А
22	Defau It		16QAM	Outer_Full	DFT-s- OFDM 64QAM	Outer_Full	В
23	High		16QAM	Outer_1RB_Le ft	DFT-s- OFDM 64QAM	Edge_1RB_Ri ght	В
24	Low		16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 64QAM	Edge_1RB_Le ft	В
2	Defau It		16QAM	Outer_Full	DFT-s- OFDM 256QAM	Outer_Full	В
26	High		16QAM	Outer_1RB_Le ft	DFT-s- OFDM 256QAM	Edge_1RB_Ri ght	В
27	Low		16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 256QAM	Edge_1RB_Le ft	В
28	Defau It		QPSK	Outer_Full	CP- OFDM QPSK	Outer_Full	В
29	High		QPSK	Outer_1RB_Le ft	CP- OFDM QPSK	Edge_1RB_Ri ght	В
30	High		QPSK	Outer_1RB_Le ft	CP- OFDM QPSK	N/A	Α
31	High		QPSK	N/A	CP- OFDM QPSK	Edge_1RB_Ri ght	Α
32	Low		QPSK	Outer_1RB_Ri ght	CP- OFDM QPSK	Edge_1RB_Le ft	В
33	Low		QPSK	N/A	CP- OFDM QPSK	Edge_1RB_Le ft	A
34	Low		QPSK	Outer_1RB_Ri ght	CP- OFDM QPSK	N/A	A
3	Defau It		16QAM	Outer_Full	CP- OFDM 16QAM	Outer_Full	В
36	High		16QAM	Outer_1RB_Le ft	CP- OFDM 16QAM	Edge_1RB_Ri ght	В
37	High		16QAM	Outer_1RB_Le ft	CP- OFDM 16QAM	N/A	A
38	High		16QAM	N/A	CP- OFDM 16QAM	Edge_1RB_Ri ght	A
39	Low		16QAM	Outer_1RB_Ri ght	CP- OFDM 16QAM	Edge_1RB_Le ft	В
40	Low		16QAM	N/A	CP- OFDM 16QAM	Edge_1RB_Le ft	A
41	Low		16QAM	Outer_1RB_Ri ght	CP- OFDM 16QAM	N/A	A
42	Defau It		16QAM	Outer_Full	CP- OFDM 64QAM	Outer_Full	В

43	High		16QAM	Outer_1RB_Le ft	CP- OFDM 64QAM	Edge_1RB_Ri ght	В
44	Low		16QAM	Outer_1RB_Ri ght	CP- OFDM 64QAM	Edge_1RB_Le ft	В
45	Defau It		16QAM	Outer_Full	CP- OFDM 256QAM	Outer_Full	В
46	High		16QAM	Outer_1RB_Le ft	CP- OFDM 256QAM	Edge_1RB_Ri ght	В
47	Low		16QAM	Outer_1RB_Ri ght	CP- OFDM 256QAM	Edge_1RB_Le ft	В
48	Low		16QAM	Edge_Full_Rig ht	CP- OFDM 256QAM	Edge_Full_Lef t	В

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].

NOTE 2: If the UE supports multiple CC combinations in the EN-DC configuration with the same N<sub>RB\_agg</sub>, select the combination to test as follows:

- Lowest ENBW: NR component with lowest N<sub>RB</sub> is tested.
- Highest ENBW: NR component with highest N<sub>RB</sub> is tested.

NOTE 3: Outer\_Full defined as the transmission bandwidth configuration NRB per channel bandwidth for the E-UTRA component as indicated in TS 36.521 [10] Table 5.4.2-1. Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Edge\_Full\_Right is defined as 2 RBs allocated at the right edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component.

NOTE 4: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in FR1

NOTE 5: Test IDs with simultaneous E-UTRA and NR UL transmission only apply for UEs indicating dualPA-

Architecture.

NOTE 6: Power config as specified in Table 6.2B.2.1.4.3-3 and Table 6.2B.2.1.4.3-4 for PC3 UE or Table 6.2B.2.1.4.3-5 and Table 6.2B.2.1.4.3-6 for PC2 UE.

### 6.2B.2.2.4.2 Test procedure

Same test procedure as described in clause 6.2B.2.1.4.2.

#### 6.2B.2.2.4.3 Message contents

Same message contents as in clause 6.2B.2.1.4.3.

### 6.2B.2.2.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2B.2.2.5-1 ~ Table 6.2B.2.2.5-8a.

Table 6.2B.2.2.5-1: UE Power Class 3 test requirements, UE supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MPR <sub>tot</sub> (dB)	P <sub>EN-DC, tot_L</sub> (dBm)	P <sub>EN-DC, tot_H</sub> (dBm)	T <sub>LOW</sub> (Pcmax_L) (dB)	T <sub>HIGH</sub> (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22,	15, 30,	12.0	11.0	23.0	6.0	4.0		
25, 28, 35, 42,	60						27.0 + TT	5.0 - TT
45 (NOTE 1)								
2, 5, 9, 12, 16,	15,30,	15.0	8.0	23.0	7.0	4.0	27.0 + TT	1.0 - TT
19, 23, 24, 26,	60							
27, 29, 32, 36,								
39, 43, 44, 46,								
47 (NOTE 2)								
48 (NOTE 3)	15	14.0	9.0	23.0	7.0	4.0	27.0 + TT	2.0 - TT
	30, 60	13.0	10.0	23.0	7.0	4.0	27.0 + TT	3.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.2.5-2: UE Power Class 3 test requirements, UE with/without supporting dynamic power sharing, E-UTRA UL transmission not overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MPR (dB)	P <sub>CMAX, L</sub> (dBm)	Р <sub>СМАХ, Н</sub> (dBm)	T <sub>LOW</sub> (P <sub>CMAX L</sub> (dB)	THIGH (PCMAX_H) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41 (NOTE 1)	15, 30, 60	1.0	22.0	23.0	2.0	2.0	25.0 + TT	20.0 - TT
4, 6 (NOTE 2)	15, 30, 60	3.5	19.5	23.0	2.0	2.0	25.0 + TT	17.5 - TT
11, 13 (NOTE 2)	15, 30, 60	1	22.0	23.0	2.0	2.0	25.0 + TT	20.0 - TT
18, 20 (NOTE 2)	15, 30, 60	2	21.0	23.0	2.0	2.0	25.0 + TT	19.0 - TT
31,33, 38, 40 (NOTE 2)	15, 30, 60	3	20.0	23.0	2.0	2.0	25.0 + TT	18.0 - TT

NOTE 1: Test configuration IDs without transmission overlap with E-UTRA allocation, MPR requirements in TS 36.101 [4] apply.

NOTE 2: Test configuration IDs without transmission overlap with NR allocation, MPR requirements in TS 38.101-1 [2] apply.

Table 6.2B.2.2.5-3: UE Power Class 3 E-UTRA carrier test requirements, UE not supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MCG MPR <sub>c</sub> (dB)	P <sub>CMAX, L</sub> (dBm)	P <sub>CMAX, H</sub> (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	T <sub>HIGH</sub> (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22, 25, 28, 35, 42, 45 (NOTE 1)	15, 30, 60	15.0	8.0	20.0	6.0	2.5	22.5 + TT	2.0 - TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (NOTE 2)	15, 30, 60	17.0	6.0	20.0	7.0	2.5	22.5 + TT	-1.0 - TT
48 (NOTE 3)	15, 30, 60	17.0	6.0	20.0	7.0	2.5	22.5 + TT	-1.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4]

apply.

Table 6.2B.2.2.5-3a: UE Power Class 3 NR carrier test requirements, UE not supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	SCG MPR'c (dB)	P <sub>CMAX, L</sub> (dBm)	P <sub>CMAX, H</sub> (dBm)	T <sub>LOW</sub> (Pcmax_L) (dB)	T <sub>HIGH</sub> (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22,	15, 30,	15.0	8.0	20.0	6.0	2.5	22.5 + TT	2.0 - TT
25, 28, 35, 42, 45 (NOTE 1)	60							
	45.00	47.0	2.0	20.0		0.5	00 F TT	40
2, 5, 9, 12, 16,	15, 30,	17.0	6.0	20.0	7.0	2.5	22.5 + TT	-1.0 - TT
19, 23, 24, 26,	60							
27, 29, 32, 36,								
39, 43, 44, 46,								
47 (NOTE 2)								
48 (NOTE 3)	15, 30	17.0	6.0	20.0	7.0	2.5	22.5 + TT	-1.0 - TT
	60	16.0	7.0	20.0	7.0	2.5	22 5 + TT	- TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.2.5-4: Void

Table 6.2B.2.2.5-5: UE Power Class 2 test requirements, UE supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MPR <sub>tot</sub> (dB)	P <sub>EN-DC, tot_L</sub> (dBm)	P <sub>EN-DC, tot_H</sub> (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	T <sub>HIGH</sub> (Pcmax_H) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22, 25, 28, 35, 42, 45 (NOTE 1)	15, 30, 60	12.0	14.0	26.0	6.0	4.0	30.0 + TT	8.0 - TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (NOTE 2)	15,30, 60	15.0	11.0	26.0	6.0	4.0	30.0 + TT	5.0 - TT
48 (NOTE 3)	15	14.0	12.0	26.0	6.0	4.0	30.0 + TT	6.0 - TT
	30, 60	13.0	13.0	26.0	6.0	4.0	30.0 + TT	7.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.2.5-6: UE Power Class 2 test requirements, UE with/without supporting dynamic power sharing, E-UTRA UL transmission not overlapping with NR UL transmission (Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC2 or Not present by powerClassNRPart-r16))

Configuration ID	Test SCS (kHz)	MPR (dB)	P <sub>CMAX, L</sub> (dBm)	P <sub>CMAX, H</sub> (dBm)	TLOW (PCMAX L (dB)	Thigh (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41 (NOTE 1)	15, 30, 60	1.0	25.0	26.0	2.0	2.0	28.0 + TT	23.0 - TT
4, 6 (NOTE 2)	15, 30, 60	3.5	22.5	26.0	2.0	2.0	28.0 + TT	20.5 - TT
11, 13 (NOTE 2)	15, 30, 60	3.5	22.5	26.0	2.0	2.0	28.0 + TT	20.5 - TT
18, 20 (NOTE 2)	15, 30, 60	3.5	22.5	26.0	2.0	2.0	28.0 + TT	20.5 - TT
31,33, 38, 40 (NOTE 2)	15, 30, 60	3.5	22.5	26.0	2.0	2.0	28.0 + TT	20.5 - TT

NOTE 1: Test configuration IDs without transmission overlap with E-UTRA allocation, MPR requirements in TS 36.101 [4] apply.

NOTE 2: Test configuration IDs without transmission overlap with NR allocation, MPR requirements in TS 38.101-1 [2] apply.

Table 6.2B.2.2.5-6a: UE Power Class 2 test requirements, UE with/without supporting dynamic power sharing, E-UTRA UL transmission not overlapping with NR UL transmission (Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC3 by powerClassNRPart-r16))

Configuration ID	Test SCS (kHz)	MPR (dB)	P <sub>CMAX, L</sub> (dBm)	Р <sub>смах, н</sub> (dВm)	T <sub>LOW</sub> (P <sub>CMAX L</sub> (dB)	Thigh (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14,	15, 30,	1.0	25.0	26.0	2.0	2.0	28.0 + TT	23.0 - TT
17, 21, 30, 34,	60							
37, 41 (NOTE								
1)								
4 6 (NOTE 3)	15, 30,	0.5	22.5	23.0	2.0	2.0	25.0 + TT	20.5 - TT
4, 6 (NOTE 2)	60							
11, 13 (NOTE	15, 30,	1.0	22.0	23.0	2.0	2.0	25.0 + TT	20.0 - TT
2)	60							
18, 20 (NOTE	15, 30,	2.0	21.0	23.0	2.0	2.0	25.0 + TT	19.0 - TT
2)	60							
31,33, 38, 40	15, 30,	3.0	20.0	23.0	2.0	2.0	25.0 + TT	17.5 - TT
(NOTE 2)	60							

NOTE 1: Test configuration IDs without transmission overlap with E-UTRA allocation, MPR requirements in TS 36.101 [4] apply.

NOTE 2: Test configuration IDs without transmission overlap with NR allocation, MPR requirements in TS 38.101-1 [2] apply.

Table 6.2B.2.2.5-7: UE Power Class 2 E-UTRA carrier test requirements, UE not supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	MCG MPR₅ (dB)	P <sub>CMAX, L</sub> (dBm)	Р <sub>СМАХ, Н</sub> (dBm)	T <sub>LOW</sub> (Pcmax_L) (dB)	Thigh (Pcmax_h) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22, 25, 28, 35, 42, 45 (NOTE 1)	15, 30, 60	15.0	11.0	23.0	6.0	2.0	25.0 + TT	5.0 - TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (NOTE 2)	15, 30, 60	17.0	9.0	23.0	6.0	2.0	25.0 + TT	3.0 - TT
48 (NOTE 3)	15, 30, 60	17.0	9.0	23.0	6.0	2.0	25.0 + TT	3.0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply. NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.2.5-7a: UE Power Class 2 NR carrier test requirements, UE not supporting dynamic power sharing, E-UTRA UL transmission overlapping with NR UL transmission

Configuration ID	Test SCS (kHz)	SCG MPR'c (dB)	P <sub>CMAX, L</sub> (dBm)	P <sub>CMAX, H</sub> (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	T <sub>HIGH</sub> (Pcmax_H) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22,	15, 30,	15.0	11.0	23.0	6.0			5.0 - TT
25, 28, 35, 42,	60					2.0	25.0 + TT	
45 (NOTE 1)								
2, 5, 9, 12, 16,	15, 30,	17.0	9.0		6.0			3.0 – TT
19, 23, 24, 26,	60							
27, 29, 32, 36,				23.0		2.0	25.0 + TT	
39, 43, 44, 46,								
47 (NOTE 2)								
48 (NOTE 3)	15, 30	17.0	9.0	23.0	6.0	2.0	25.0 + TT	3.0 – TT
	60	16.0	10.0	23.0	6.0	2.0	25.0 + TT	4 0 - TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

Table 6.2B.2.2.5-8: Void

Table 6.2B.2.2.5-8a: Void

Table 6.2B.2.2.5-9: Test Tolerance

	f ≤ 3.0GHz	3.0GHz < f ≤ 6GHz
BW ≤ 40MHz	0.7	1.0
40MHz < BW ≤ 100MHz	1.0	1.0

# 6.2B.2.3 UE Maximum Output Power reduction for Inter-Band EN-DC within FR1 (1 NR CC)

#### 6.2B.2.3.1 Test purpose

Same test purpose as in clause 6.2.2.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.2B.2.3.2 Test applicability

The requirements of this test apply to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

NOTE: Test execution is not necessary if clause 6.5B.2.3.3 ACLR is executed since MPR requirement is verified in this test cases.

#### 6.2B.2.3.3 Minimum conformance requirements

For inter-band EN-DC between E-UTRA and NR FR1, UE maximum output power reduction specified in TS 36.101 [5] and TS 38.101-1 [2] apply for E-UTRA and NR respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.2.3.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

# 6.2B.2.3.4 Test description

Same test description as in clause 6.2.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.2.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 4.6-1.
- 3.1. Downlink E-UTRA signals are initially set up according to TS 36.521-1 [10] Annex C0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0.
- 4.1. The E-UTRA UL Reference Measurement channels are set according to Table 4.6-1.

Step 6 of Initial conditions as in clause 6.2.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.2.2.4.2 in TS 38.521-1 [8].

#### 6.2B.2.3.5 Test requirement

For PC3 UE, same test requirement as in clause 6.2.2.5 in TS 38.521-1 [8].

For PC2 UE (Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC2 or Not present by *powerClassNRPart-r16*), same test requirement for PC2 UE as in clause 6.2.2.5 in TS 38.521-1 [8]. For PC2 UE (Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC3 by *powerClassNRPart-r16*)), same test requirement for PC3 UE as in clause 6.2.2.5 in TS 38.521-1 [8].

# 6.2B.2.3a UE Maximum Output Power reduction for Inter-Band NE-DC within FR1 (1 NR CC)

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier in this test case are tested in 6.2.2 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.2.3 and 6.2.3A of TS 36.521-1 [10]. Neither NR carrier nor LTE carrier(s) needs to be tested again.

# 6.2B.2.4 UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (1 NR CC)

Editor's note: Following aspects are missing or under discussion

The referred test case 6.2.2 in TS 38.521-2 [9] is incomplete for PC1, PC2 and PC4.

#### 6.2B.2.4.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified maximum output power with MPR and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

#### 6.2B.2.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.2B.2.4.3 Minimum conformance requirements

UE maximum output power reduction requirement for E-UTRA single carrier and CA operation specified in clauses 6.2.3 and 6.2.3A of TS 36.101[5] and for NR single carrier and CA operation specified in clauses 6.2.2, 6.2A.2, and 6.2D.2 of TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.2.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

6.2B.2.4.4 Test description

### 6.2B.2.4.4.1 Initial conditions

Same test description as in clause 6.2.2.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.2.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 4.6-1.
- 3.1. Downlink E-UTRA signals are initially set up according to TS 36.521-1 [10] Annex C, clauses C.0, C.1 and C.3.0, and uplink signals according to Annex H, clauses H.1 and H.3.0.
- 4.1. The E-UTRA UL Reference Measurement channels are set according to Table 4.6-1.

Step 6 of Initial conditions as in clause 6.2.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.

Same test procedure as in clause 6.2.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.2B.2.4.5 Test requirement

Same test requirement as in clause 6.2.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.2B.2.4a UE Maximum Output Power reduction enhancements for Inter-Band EN-DC including FR2 (1 NR CC)

# 6.2B.2.4a.1 Test purpose

Same test purpose as in clause 6.2.2\_1 in TS 38.521-2 [9] for the NR carrier.

#### 6.2B.2.4a.2 Test applicability

This test case applies to:

- -All types of E-UTRA PC3 UE release 15 supporting inter-band EN-DC including FR2 with 1 NR UL CC and *modifiedMPRbehaviour* bit 0 capability (according to Annex P.1 in TS38.521-2 [9]).
- All types of E-UTRA PC3 UE release 16 and forward supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.2B.2.4a.3 Minimum conformance requirements

UE maximum output power reduction requirement for E-UTRA single carrier and CA operation specified in clauses 6.2.3 and 6.2.3A of TS 36.101[5] and for NR single carrier and CA operation specified in clauses 6.2.2, 6.2A.2, and 6.2D.2 of TS 38.101-2 [3] apply.

Same minimum conformance requirements as in clause 6.2.2\_1.3 in TS 38.521-2 [9] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.2.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.2B.2.4a.4 Test description

Same test description as in clause 6.2.2\_1.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.2.2\_1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 4.6-1.
- 3.1. Downlink E-UTRA signals are initially set up according to TS 36.521-1 [10] Annex C, clauses C.0, C.1 and C.3.0, and uplink signals according to Annex H, clauses H.1 and H.3.0.
- 4.1. The E-UTRA UL Reference Measurement channels are set according to Table 4.6-1.

Step 6 of Initial conditions as in clause 6.2.2\_1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.

Same test procedure as in clause 6.2.2\_1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

### 6.2B.2.4a.5 Test requirement

Same test requirement as in clause 6.2.2\_1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.2B.2.4D UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (1 NR CC)

Editor's note: Following aspects are missing or under discussion

The referred test case 6.2D.2 in TS 38.521-2 [9] is incomplete.

#### 6.2B.2.4D.1 Test purpose

To verify that the error of the UE maximum output power does not exceed the range prescribed by the specified maximum output power with MPR and tolerance.

An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.

### 6.2B.2.4D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC with UL MIMO.

#### 6.2B.2.4D.3 Minimum conformance requirements

UE maximum output power reduction requirement for E-UTRA single carrier and CA operation specified in clauses 6.2.3 and 6.2.3A of TS 36.101[5] and for NR single carrier and CA operation specified in clauses 6.2.2, 6.2A.2, and 6.2D.2 of TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.2.4.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

#### 6.2B.2.4D.4 Test description

#### 6.2B.2.4D.4.1 Initial conditions

Same test description as in clause 6.2D.2.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.2D.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 4.6-1.
- 3.1. Downlink E-UTRA signals are initially set up according to TS 36.521-1 [10] Annex C, clauses C.0, C.1 and C.3.0, and uplink signals according to Annex H, clauses H.1 and H.3.0.
- 4.1. The E-UTRA UL Reference Measurement channels are set according to Table 4.6-1.

Step 6 of Initial conditions as in clause 6.2D.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.

Same test procedure as in clause 6.2D.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

### 6.2B.2.4.5 Test requirement

Same test requirement as in clause 6.2D.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.2B.2.4\_1 UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (>1 NR CC)

# 6.2B.2.4\_1.1 UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (2 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.2A.2.1 in TS 38.521-2 [9] is incomplete for aggregated BW > 400MHz and intraband non-contiguous CA.
- The referred test case 6.2A.2.1 in TS 38.521-2 [9] is incomplete for power class 1, 2 and 4.

#### 6.2B.2.4\_1.1.1 Test purpose

Same test purpose as in clause 6.2.2.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.2B.2.4\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

### 6.2B.2.4\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2B.2.4.3.

#### 6.2B.2.4\_1.1.4 Test description

#### 6.2B.2.4\_1.1.4.1 Initial condition

Same test description as in clause 6.2A.2.1.4 in TS 38.521-2 [9] for the NR carriers with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.2A.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2A.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.2A.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

### 6.2B.2.4\_1.1.5 Test Requirements

Same test requirement as in clause 6.2A.2.1.5 in TS 38.521-2 [9] for the NR carriers.

# 6.2B.2.5 UE Maximum Output power reduction for inter-band EN-DC including both FR1 and FR2

#### 6.2B.2.5.1 Test purpose

Same test purpose as in clause 6.2B.2.3.1 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.2B.2.4.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.2B.2.5.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for maximum output power apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 6.2B.

# 6.2B.2.5D UE Maximum Output power reduction for inter-band EN-DC including both FR1 and FR2 for UL MIMO

#### 6.2B.2.5D.1 Test purpose

Same test purpose as in clause 6.2D.2.1 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.2D.2.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.2B.2.5D.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for maximum output power apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 6.2B.

# 6.2B.3 UE additional maximum output power reduction for EN-DC

# 6.2B.3.1 UE Additional Maximum Output Power reduction for Intra-band contiguous EN-DC

#### Editor's note:

Test requirements for non-overlapping transmission of non-DPS UE need further investigation

#### 6.2B.3.1.1 Test purpose

Additional emission requirements can be signalled by the network with network signalling value indicated by the field *additionalSpectrumEmission*. To meet these additional requirements, additional maximum power reduction (A-MPR) is allowed for the maximum output power as specified in Table 6.2B.1.1.3-1. Unless stated otherwise, an A-MPR of 0 dB shall be used.

#### 6.2B.3.1.2 Test applicability

The requirements of this test apply in test case 6.5B.2.1.2 Additional spectrum emission mask for network signalled values NS\_04 and NS\_35 to all types of E-UTRA power class 3 and power class 2 UE release 15 and forward, supporting intra-band contiguous EN-DC.

# 6.2B.3.1.3 Minimum conformance requirements

For intra-band contiguous EN-DC band combinations with additional requirements the allowed A-MPR is specified in table 6.2B.3.1.3-1 for UEs configured with EN-DC and combinations of network signalling values indicated in the E-UTRA and NR cell groups.

Unless otherwise stated the A-MPR specified in clause 6.2B.3.1 for intra-band contiguous EN-DC configurations is the total power reduction allowed including MPR.

Table 6.2B.3.1.3-1: Additional maximum power reduction for Intra-band contiguous EN-DC

DC configuration	Requirement (subclause)	E-UTRA network signalling value	NR network signalling value	A-MPR (clause)
DC_(n)71AA	6.5B.2.1.2.3.1	NS_35	NS_35	6.2B.3.1.3.1 <sup>3</sup>
DC_(n)41AA <sup>1</sup>	6.5B.2.1.2.3.2	NS_01 or NS_04	NS_04	6.2B.3.1.3.2 <sup>4</sup>

NOTE 1: Only applies to UEs that support dual UL transmission for this EN-DC combination.

NOTE 2: The additional emission requirement is indicated when the combination of network signalling values in the two CGs is set (only for UEs configured with EN-DC).

NOTE 3: The A-MPR is applied as MPR if NS\_35 is not signalled.

NOTE 4: Void.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.3.1.

Exception requirements for both NR and E-UTRA are defined for this test when transmission on E-UTRA overlap in time with NR.LTE anchor agnostic approach is not applied for this case. E-UTRA test point analysis is included and E-UTRA measurements are performed.

Exception requirements for both NR and E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR, for a UE that doesn't support dynamic power sharing. LTE anchor agnostic approach is not applied for this case. E-UTRA test point analysis is included and E-UTRA measurements are performed.

No exception requirements for NR or E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR, for a UE that supports dynamic power sharing. LTE anchor agnostic approach is not applied for this case.

### 6.2B.3.1.3.1 A-MPR for DC\_(n)71AA

For UE supporting dynamic power sharing the following:

- for the MCG, A-MPR<sub>c</sub> in accordance with TS 36.101 [5]
- for the SCG, A-MPR'<sub>c</sub> = [A-MPR<sub>DC</sub>]
- for the total configured transmission power,  $A-MPR_{tot} = A-MPR_{DC}$

with A-MPR<sub>DC</sub> as defined in this subclause.

For UEs not supporting dynamic power sharing the following

- for the MCG,

$$A-MPR_c = A-MPR_{E-UTRA}$$

for the SCG,

$$A-MPR'_c = A-MPR_{NR}$$

with A-MPR<sub>E-UTRA</sub> and A-MPR<sub>NR</sub> as defined in this subclause.

For DC\_(n)71AA with configured with network signaling values as per Table 6.2B.3.1.0-1 the allowed A-MPR is defined by

- for UE indicating support of dynamicPowerSharing in the UE-MRDC-Capability IE

 $A-MPR_{DC} = CEIL\{ M_{A,DC}(A), 0.5 \}$ 

where A-MPR<sub>DC</sub> is the total power reduction allowed (dB),

- for OFDM:

$$M_{A,DC} = 11.00 - 11.67*A;$$
  $0.00 < A \le 0.30$ 

8.10 - 2.00\*A; 
$$0.30 < A \le 0.80$$

6.50; 
$$0.80 < A \le 1.00$$

- for DFT-S-OFDM:

$$M_{A,DC} = 11.00 - 13.33*A; 0.00 < A \le 0.30$$

8.00 - 3.33\*A; 
$$0.30 < A \le 0.60$$

6.00: 
$$0.60 < A < 1.00$$

where:

$$A = \frac{L_{CRB,E-UTRA} + L_{CRB,NR}}{N_{RB,E-UTRA} + N_{RB,NR}}$$

with  $L_{CRB,\,E-UTRA}$  and  $N_{RB,\,E-UTRA}$  the number of allocated PRB and transmission bandwidth for MCG,  $L_{CRB,NR}$  and  $N_{RB,NR}$  the number of allocated PRB and transmission bandwidth for SCG with SCS = 15 kHz.

for UE not indicating support of dynamicPowerSharing

A- MPR<sub>E-UTRA</sub> = CEIL{ 
$$M_{A, E-UTRA}$$
, 0.5}  
A-MPR<sub>NR</sub> = CEIL{  $M_{A,NR}$ , 0.5}

where A-MPR is the total power reduction allowed per CG with

$$\begin{split} M_{A,E-UTRA} &= M_{A,DC} (A_{E-UTRA,wc}) - 1 - \Delta_{E-UTRA} M_{A,NR} = M_{A,DC} (A_{NR,wc}) - 1 - \Delta_{NR} A_{E-UTRA,wc} = \\ \frac{L_{CRB,E-UTRA} + 1}{N_{RB,E-UTRA} + N_{RB,NR}} A_{NR,wc} &= \frac{1 + L_{CRB,NR}}{N_{RB,E-UTRA} + N_{RB,NR}} \Delta_{E-UTRA} = 10 \log_{10} \frac{N_{RB,E-UTRA}}{N_{RB,E-UTRA} + N_{RB,NR}} \Delta_{NR} = \\ 10 \log_{10} \frac{N_{RB,NR}}{N_{RB,E-UTRA} + N_{RB,NR}} & M_{A,E-UTRA} &= M_{A,DC} (A_{E-UTRA,wc}) - 1 - \Delta_{E-UTRA} \\ & M_{A,NR} &= M_{A,DC} (A_{NR,wc}) - 1 - \Delta_{NR} \\ & A_{E-UTRA,wc} &= \frac{L_{CRB,E-UTRA} + 1}{N_{RB,E-UTRA} + N_{RB,NR}} \\ & A_{NR,wc} &= \frac{1 + L_{CRB,NR}}{N_{RB,E-UTRA} + N_{RB,NR}} \\ & a? ?_{E-UTRA} &= 10 \log_{10} \frac{N_{RB,E-UTRA}}{N_{RB,E-UTRA} + N_{RB,NR}} \\ & a? ?_{NR} &= 10 \log_{10} \frac{N_{RB,E-UTRA}}{N_{RB,E-UTRA} + N_{RB,NR}} \end{split}$$

Where  $L_{CRB,NR}$  and  $N_{RB,NR}$  the number of allocated PRB and transmission bandwidth for SCG with SCS = 15 kHz.

6.2B.3.1.3.2 A-MPR for NS 04

6.2B.3.1.3.2.0 General

When the UE is configured for B41/n41 intra-band contiguous EN-DC and it receives IE NS\_04, the UE determines the total allowed maximum output power reduction as specified in this clause. The A-MPR for EN-DC defined in this clause is used instead of MPR defined in 6.2B.2.2, not additively, so EN-DC MPR = 0 when NS\_04 is signaled. For UEs scheduled with single uplink transmission, AMPR in subclause 6.2.4 of [5] and 6.2.3 of [2] apply.

For UE supporting dynamic power sharing the following:

- for the MCG, A-MPR<sub>c</sub> in accordance with 36.101 [5]
- for the SCG,

 $A-MPR'_c = A-MPR_{NR} = MAX(A-MPR_{single,NR}, A-MPR_{IM3})$ 

- for the total configured transmission power,

$$A-MPR_{tot} = P_{PowerClass,EN-DC} - min(P_{PowerClass,EN-DC}, 10*log_{10}(10^{(P_{PowerClass,E-UTRA} - A-MPR_{E-UTRA})/10) + 10^{(P_{PowerClass,NR} - A-MPR_{NR})/10))$$

where

 $A-MPR_{E-UTRA} = MAX(A-MPR_{single,E-UTRA} + MPR_{single,E-UTRA}, A-MPR_{IM3})$ 

with

- A-MPR<sub>single, E-UTRA</sub> is the A-MPR defined for the E-UTRA transmission in TS 36.101 [5]
- A-MPR<sub>single,NR</sub> is the A-MPR defined for the NR transmission in TS 38.101-1 [2]
- MPR<sub>single,E-UTRA</sub> is the MPR defined for the E-UTRA transmission in TS 36.101 [5]

For UEs not supporting dynamic power sharing the following

- for the MCG.

$$A-MPR_c = MAX(A-MPR_{single, E-UTRA} + MPR_{single, E-UTRA}, A-MPR_{IM3})$$

for the SCG,

$$A-MPR'_c = MAX(A-MPR_{single,NR}, A-MPR_{IM3})$$

where

- A-MPR<sub>single, E-UTRA</sub> is the A-MPR defined for the E-UTRA transmission in TS 36.101 [5]
- A-MPR<sub>single,NR</sub> is the A-MPR defined for the NR transmission in TS 38.101-1 [2]
- MPR<sub>single,E-UTRA</sub> is the MPR defined for the E-UTRA transmission in TS 36.101 [5]

The UE determines the Channel Configuration Case and the value of A-MPR<sub>IM3</sub> as follows:

If 
$$F_{IM3,low\_block,low} < 2490.5 \text{ MHz}$$

Channel Configuration Case B. A-MPR<sub>IM3</sub> defined in clause 6.2B.3.1.3.2.2.

Else

Channel Configuration Case A. A-MPR<sub>IM3</sub> defined in clause 6.2B.3.1.3.2.1.

where

- $F_{IM3,low\_block,low} = (2 * F_{low\_channel,low\_edge}) F_{high\_channel,high\_edge}$
- Flow\_channel,low\_edge is the lowermost frequency of lower transmission bandwidth configuration.
- Fhigh channel, high edge is the uppermost frequency of upper transmission bandwidth configuration.

Where the transmission bandwidth configuration for NR is the maximum frequency span covering all the configured SCSSpecificCarrier for scenarios that carrier bandwidths with different SCS can be fully overlapped.

#### 6.2B.3.1.3.2.1 A-MPR<sub>IM3</sub> for NS\_04 to meet -13 dBm / 1MHz for 26dBm UE power

A-MPR in this subclause is relative to 26 dBm for a power class 2 Cell Group. The same A-MPR is used relative to 23 dBm for a power class 3 Cell Group. For the UE is configured with channel configurations Case A or Case C (defined in Clause 6.2B.3.2.3.1), the allowed maximum output power reduction for IM3s applied to transmission on the MCG and the SCG with non-contiguous resource allocation is defined as follows:

$$A-MPR_{IM3} = M_A$$

Where M<sub>A</sub> is defined as follows

$$\begin{split} M_A &= 15 \ ; \ 0 \leq B < 0.5 \\ 10 \ ; \ 0.5 \leq B < 1.0 \\ 8 \ ; \ 1.0 \leq B < 2.0 \\ 6 \ ; \ 2.0 \leq B \end{split}$$

Where:

For UEs supporting dynamic power sharing,

$$B = (L_{CRB\_alloc, E-UTRA} * 12* SCS_{E-UTRA} + L_{CRB\_alloc, NR} * 12* SCS_{NR})/1,000,000$$

For UEs not supporting dynamic power sharing,

For E-UTRA

$$B = (L_{CRB\_alloc, E-UTRA} * 12* SCS_{E-UTRA} + 12* SCS_{NR})/1,000,000$$

Where  $SCS_{NR} = 15$  kHz is assumed in calculation of B.

For NR

 $B = (12*SCS_{E-UTRA} + L_{CRB alloc,NR} * 12 * SCS_{NR})/1,000,000$ 

Where SCS<sub>E-UTRA</sub> =15 kHz is assumed in calculation of B

and  $M_A$  is reduced by 1 dB for B < 2.0.

#### 6.2B.3.1.3.2.2 A-MPR for NS 04 to meet -25 dBm / 1MHz for 26 dBm UE power

A-MPR in this subclause is relative to 26 dBm for a power class 2 Cell Group. The same A-MPR is used relative to 23 dBm for a power class 3 Cell Group. For the UE is configured with channel configurations Case B or Case D (defined in clause 6.2B.3.2.1), the allowed maximum output power reduction for IM3s applied to transmission on the MCG and the SCG with non-contiguous resource allocation is defined as follows:

$$A-MPR_{IM3} = M_A$$

Where M<sub>A</sub> is defined as follows

$$\begin{split} M_A &= 15 \ ; \ 0 \leq B < 1.0 \\ 14 \ ; \ 1.0 \leq B < 2.0 \\ 13 \ ; \ 2.0 \leq B < 5.0 \\ 12 \ ; \ 5.0 \leq B \end{split}$$

Where:

For UEs supporting dynamic power sharing,

$$B = (L_{CRB\_alloc, E-UTRA} * 12* SCS_{E-UTRA} + L_{CRB\_alloc, NR} * 12* SCS_{NR})/1,000.000$$

For UEs not supporting dynamic power sharing,

For E-UTRA

$$B = (L_{CRB\_alloc,E-UTRA} * 12* SCS_{E-UTRA} + 12* SCS_{NR})/1,000,000$$

Where  $SCS_{NR} = 15$  kHz is assumed in calculation of B.

For NR

$$B = (12*SCS_{E-UTRA} + L_{CRB\_alloc,NR} * 12*SCS_{NR})/1,000,000$$

Where SCS<sub>E-UTRA</sub> =15 kHz is assumed in calculation of B

and MA is reduced by 1 dB.

#### 6.2B.3.1.4 Test description

#### 6.2B.3.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on NR operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 6.2B.3.1.4.1-1 through 6.2B.3.1. 4.1-2. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.2B.3.1.4.1-0: Void

Table 6.2B.3.1.4.1-1: Test configuration table (network signalled value "NS\_35")

	Initial Conditions										
Test Environment as specified in TS 38.508-1 [6] clause 4.1	Normal										
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1	Low range, High range										
Test EN-DC bandwidth combination as specified	Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub>										
in Table 5.3B.1.2-1	(Note 2)										
Test SCS for the NR cell as specified in TS 38.521-1 [8] Table 5.3.5-1	Lowest, Highest										

	1	T	T	Test Parameters EN-DC Uplink Configuration						
			F-I	TRA Cell		R Cell	Common			
Test ID	Freq	Downlink Configuration	Modulation	RB allocation (Note 5)	Modulation	RB allocation (Note 1)	Power config (Note 8)			
1	Default		16QAM	Outer_Full	DFT-s- OFDM Pi/2 BPSK	Outer_Full	В			
2 (Note 3)	Default		16QAM	Outer_1RB_Left	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Right	В			
3 (Note 3)	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM Pi/2 BPSK	N/A	А			
4 (Note 3)	High		16QAM	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Right	А			
5 (Note 4)	Default		16QAM	Outer_1RB_Right	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Left	В			
6 (Note 4) 7	Low		16QAM	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Left	А			
7 (Note 4)	High		16QAM	Outer_1RB_Right	DFT-s- OFDM Pi/2 BPSK	N/A	А			
8	Default		16QAM	Outer_Full	DFT-s- OFDM QPSK	Outer_Full	В			
9 (Note 3)	Default	N/A	16QAM	Outer_1RB_Left	DFT-s- OFDM QPSK	Edge_1RB_Right	В			
10 (Note 3)	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM QPSK	N/A	А			
11 (Note 3)	High		16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Right	А			
12 (Note 4)	Default		16QAM	Outer_1RB_Right	DFT-s- OFDM QPSK	Edge_1RB_Left	В			
13 (Note 4)	Low		16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Left	А			
14 (Note 4)	High		16QAM	Outer_1RB_Right	DFT-s- OFDM QPSK	N/A	А			
15	Default		16QAM	Outer_Full	DFT-s- OFDM 16QAM	Outer_Full	В			
16 (Note 3)	Default		16QAM	Outer_1RB_Left	DFT-s- OFDM 16QAM	Edge_1RB_Right	В			
17 (Note 3)	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM 16QAM	N/A	А			

40	1	T T		Ī	DET	T	
18 (Note 3)	High		16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Right	А
19 (Note 4)	Default		16QAM	Outer_1RB_Right	DFT-s- OFDM 16QAM	Edge_1RB_Left	В
20 (Note 4)	Low		16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Left	А
21 (Note 4)	High		16QAM	Outer_1RB_Right	DFT-s- OFDM 16QAM	N/A	А
22	Default		16QAM	Outer_Full	DFT-s- OFDM 64QAM	Outer_Full	В
23 (Note 3)	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM 64QAM	Edge_1RB_Right	В
24 (Note 4)	High		16QAM	Outer_1RB_Right	DFT-s- OFDM 64QAM	Edge_1RB_Left	В
25	Default		16QAM	Outer_Full	DFT-s- OFDM 256QAM	Outer_Full	В
26 (Note 3)	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM 256QAM	Edge_1RB_Right	В
27 (Note 4)	High		16QAM	Outer_1RB_Right	DFT-s- OFDM 256QAM	Edge_1RB_Left	В
28	Default		16QAM	Outer_Full	CP-OFDM QPSK	Outer_Full	В
29 (Note 3)	Default		16QAM	Outer_1RB_Left	CP-OFDM QPSK	Edge_1RB_Right	В
30 (Note 3)	Low		16QAM	Outer_1RB_Left	CP-OFDM QPSK	N/A	А
31 (Note 3)	High		16QAM	N/A	CP-OFDM QPSK	Edge_1RB_Right	А
32 (Note 4)	Default		16QAM	Outer_1RB_Right	CP-OFDM QPSK	Edge_1RB_Left	В
33 (Note 4)	Low		16QAM	N/A	CP-OFDM QPSK	Edge_1RB_Left	А
34 (Note 4)	High		16QAM	Outer_1RB_Right	CP-OFDM QPSK	N/A	А
35	Default		16QAM	Outer_Full	CP-OFDM 16QAM	Outer_Full	В
36 (Note 3)	Default		16QAM	Outer_1RB_Left	CP-OFDM 16QAM	Edge_1RB_Right	В
37 (Note 3)	Low		16QAM	Outer_1RB_Left	CP-OFDM 16QAM	N/A	А
38 (Note 3)	High		16QAM	N/A	CP-OFDM 16QAM	Edge_1RB_Right	А
39 (Note 4)	Default		16QAM	Outer_1RB_Right	CP-OFDM 16QAM	Edge_1RB_Left	В
40 (Note 4)	Low		16QAM	N/A	CP-OFDM 16QAM	Edge_1RB_Left	А

41 (Note 4)	High	16QAM	Outer_1RB_Right	CP-OFDM 16QAM	N/A	А
42	Default	16QAM	Outer_Full	CP-OFDM 64QAM	Outer_Full	В
43 (Note 3)	Low	16QAM	Outer_1RB_Left	CP-OFDM 64QAM	Edge_1RB_Right	В
44 (Note 4)	High	16QAM	Outer_1RB_Right	CP-OFDM 64QAM	Edge_1RB_Left	В
45	Default	16QAM	Outer_Full	CP-OFDM 256QAM	Outer_Full	В
46 (Note 3)	Low	16QAM	Outer_1RB_Left	CP-OFDM 256QAM	Edge_1RB_Right	В
47 (Note 4)	High	16QAM	Outer_1RB_Right	CP-OFDM 256QAM	Edge_1RB_Left	В
48 (Note 4)	Default	16QAM	Edge_Full_Right	CP-OFDM 256QAM	Edge_Full_Left	В

- NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].
- NOTE 2: If the UE supports multiple CC combinations in the EN-DC configuration with the same N<sub>RB\_agg</sub>, select the combination to test as follows:
- Lowest ENBW: NR component with lowest N<sub>RB</sub> is tested.
- Highest ENBW: NR component with highest N<sub>RB</sub> is tested.
- NOTE 3: Applicable when E-UTRA cell carrier frequency is lower than NR cell carrier.
- NOTE 4: Applicable when NR cell carrier frequency is lower than E-UTRA cell carrier.
- NOTE 5: Outer\_Full defined as the transmission bandwidth configuration N<sub>RB</sub> per channel bandwidth for the E-UTRA component as indicated in TS 36.521 [10] Table 5.4.2-1. Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Edge\_Full\_Right is defined as 2 RBs allocated at the right edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component.
- NOTE 6: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in FR1.
- NOTE 7: Test IDs with simultaneous E-UTRA and NR UL transmission only apply for UEs indicating dualPA-Architecture.
- NOTE 8: Power config as specified in Table 6.2B.3.1.4.3-1-1 to 6.2B.3.1.4.3-2 (PC3) or Table 6.2B.3.1.4.3-3 to 6.2B.3.1.4.3-4 (PC2).

Table 6.2B.3.1.4.1-2: NR test configuration table for NS\_04

Initial Conditions									
Test Environment as specified in TS 38.508-1 [6] clause 4.1	Normal								
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1	Low range, High range (Note 7)								
Test EN-DC bandwidth combination as specified	Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub>								
in Table 5.3B.1.2-1	(Note 2)								
Test SCS for the NR cell as specified in TS 38.521-1 [8] Table 5.3.5-1	Lowest, Highest								

15 38.5	21-1 [8] 18	able 5.3.5-1		Test Parameters			
					Jplink Configu	ration	
			F-U	TRA Cell	. • • • • • • • • • • • • • • • • • • •	R Cell	Common
Test ID	Freq	Downlink Configuration	Modulation	RB allocation (Note 5)	Modulation	RB allocation (Note 1)	Power config (Note 8)
1	Default		16QAM	Outer_Full	DFT-s- OFDM Pi/2 BPSK	Outer_Full	В
2 (Note 3)	Default		16QAM	Outer_1RB_Left	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Right	В
3 (Note 3)	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM Pi/2 BPSK	N/A	Α
4 (Note 3) 5	High		16QAM	N/A	DFT-s- OFDM Pil/2 BPSK	Edge_1RB_Right	Α
(Note 4)	Default		16QAM	Outer_1RB_Right	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Left	В
6 (Note 4)	Low		16QAM	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Left	Α
7 (Note 4)	High		16QAM	Outer_1RB_Right	DFT-s- OFDM Pi/2 BPSK	N/A	Α
8	Default		16QAM	Outer_Full	DFT-s- OFDM QPSK	Outer_Full	В
9 (Note 3)	Default	N/A	16QAM	Outer_1RB_Left	DFT-s- OFDM QPSK	Edge_1RB_Right	В
10 (Note 3)	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM QPSK	N/A	А
11 (Note 3)	High		16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Right	А
12 (Note 4)	Default		16QAM	Outer_1RB_Right	DFT-s- OFDM QPSK	Edge_1RB_Left	В
13 (Note 4)	Low		16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Left	А
14 (Note 4)	High		16QAM	Outer_1RB_Right	DFT-s- OFDM QPSK	N/A	А
15	Default		16QAM	Outer_Full	DFT-s- OFDM 16QAM	Outer_Full	В
16 (Note 3)	Default		16QAM	Outer_1RB_Left	DFT-s- OFDM 16QAM	Edge_1RB_Right	В
17 (Note 3)	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM 16QAM	N/A	А

18 (Note 3)	High	16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Right	Α
19 (Note 4)	Default	16QAM	Outer_1RB_Right	DFT-s- OFDM 16QAM	Edge_1RB_Left	В
20 (Note 4)	Low	16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Left	А
21 (Note 4)	High	16QAM	Outer_1RB_Right	DFT-s- OFDM 16QAM	N/A	А
22	Default	16QAM	Outer_Full	DFT-s- OFDM 64QAM	Outer_Full	В
23 (Note 3)	Low	16QAM	Outer_1RB_Left	DFT-s- OFDM 64QAM	Edge_1RB_Right	В
24 (Note 4)	High	16QAM	Outer_1RB_Right	DFT-s- OFDM 64QAM	Edge_1RB_Left	В
25	Default	16QAM	Outer_Full	DFT-s- OFDM 256QAM	Outer_Full	В
26 (Note 3)	Low	16QAM	Outer_1RB_Left	DFT-s- OFDM 256QAM	Edge_1RB_Right	В
27 (Note 4)	High	16QAM	Outer_1RB_Right	DFT-s- OFDM 256QAM	Edge_1RB_Left	В
28	Default	16QAM	Outer_Full	CP-OFDM QPSK	Outer_Full	В
29 (Note 3)	Default	16QAM	Outer_1RB_Left	CP-OFDM QPSK	Edge_1RB_Right	В
30 (Note 3)	Low	16QAM	Outer_1RB_Left	CP-OFDM QPSK	N/A	Α
31 (Note 3)	High	16QAM	N/A	CP-OFDM QPSK	Edge_1RB_Right	А
32 (Note 4)	Default	16QAM	Outer_1RB_Right	CP-OFDM QPSK	Edge_1RB_Left	В
33 (Note 4)	Low	16QAM	N/A	CP-OFDM QPSK	Edge_1RB_Left	Α
34 (Note 4)	High	16QAM	Outer_1RB_Right	CP-OFDM QPSK	N/A	Α
35	Default	16QAM	Outer_Full	CP-OFDM 16QAM	Outer_Full	В
36 (Note 3)	Default	16QAM	Outer_1RB_Left	CP-OFDM 16QAM	Edge_1RB_Right	В
37 (Note 3)	Low	16QAM	Outer_1RB_Left	CP-OFDM 16QAM	N/A	А
38 (Note 3)	High	16QAM	N/A	CP-OFDM 16QAM	Edge_1RB_Right	А
39 (Note 4)	Default	16QAM	Outer_1RB_Right	CP-OFDM 16QAM	Edge_1RB_Left	В
40 (Note 4)	Low	16QAM	N/A	CP-OFDM 16QAM	Edge_1RB_Left	А

41 (Note 4)	High	16QAM	Outer_1RB_Right	CP-OFDM 16QAM	N/A	Α
42	Default	16QAM	Outer_Full	CP-OFDM 64QAM	Outer_Full	В
43 (Note 3)	Low	16QAM	Outer_1RB_Left	CP-OFDM 64QAM	Edge_1RB_Right	В
44 (Note 4)	High	16QAM	Outer_1RB_Right	CP-OFDM 64QAM	Edge_1RB_Left	В
45	Default	16QAM	Outer_Full	CP-OFDM 256QAM	Outer_Full	В
46 (Note 3)	Low	16QAM	Outer_1RB_Left	CP-OFDM 256QAM	Edge_1RB_Right	В
47 (Note 4)	High	16QAM	Outer_1RB_Right	CP-OFDM 256QAM	Edge_1RB_Left	В
48 (Note 4)	Default	16QAM	Edge_Full_Right	CP-OFDM 256QAM	Edge_Full_Left	В

- NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].
- NOTE 2: If the UE supports multiple CC combinations in the EN-DC configuration with the same N<sub>RB\_agg</sub>, select the combination to test as follows:
- Lowest ENBW: NR component with lowest N<sub>RB</sub> is tested.
- Highest ENBW: NR component with highest N<sub>RB</sub> is tested.
- NOTE 3: Applicable when E-UTRA cell carrier frequency is lower than NR cell carrier.
- NOTE 4: Applicable when NR cell carrier frequency is lower than E-UTRA cell carrier.
- NOTE 5: Outer\_Full defined as the transmission bandwidth configuration N<sub>RB</sub> per channel bandwidth for the E-UTRA component as indicated in TS 36.521 [10] Table 5.4.2-1. Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Edge\_Full\_Right is defined as 2 RBs allocated at the right edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component.
- NOTE 6: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in FR1.
- NOTE 7: Additional IM3 test frequencies may apply.
- NOTE 8: Power config as specified in Table 6.2B.3.1.4.3-1 to 6.2B.3.1.4.3-2 (PC3) or Table 6.2B.3.1.4.3-3 to 6.2B.3.1.4.3-4 (PC2).
- NOTE 9: Test IDs with simultaneous E-UTRA and NR UL transmission only apply for UEs indicating dualPA-Architecture.

Table 6.2B.3.1.4.1-3: Additional IM3 Test Frequencies for NS\_04 intra-band contiguous EN-DC

Additional Initial Condition										
Additional IM3 Test Frequencies	if SCS 15 kHz, 15 kHz NR raster, and NR ChBw 40 MHz or 50 MHz then IM3 test frequencies as specified in Table 6.2B.3.1.4.1-4.									
	if SCS 30 kHz, 30 kHz NR raster, and NR ChBw 40 MHz, 50 MHz or 60 MHz then IM3 test frequencies as specified in Table 6.2B.3.1.4.1-5.									
	if SCS 60 kHz, 15 kHz NR raster, and NR ChBw 40 MHz, 50 MHz or 60 MHz then IM3 test frequencies as specified in Table 6.2B.3.1.4.1-6.									

Table 6.2B.3.1.4.1-4: EN-DC combination DC\_(n)41AA, intra-band contiguous, SCS 15 kHz, 15 kHz NR raster, IM3 test frequencies

EN-DC channel bandwidt h combinati on	CC	Bandwi dth [MHz]	carrierBandwi dth [PRBs]	Rang	е	Carrier centre [MHz] Note 2	Carrier centre [ARFC N]	point A [MHz]	absoluteFrequencyP ointA [ARFCN]	offsetToCar rier [Carrier PRBs]	SS bloc k SCS [kHz ]	GSC N	absoluteFrequenc ySSB [ARFCN]
E-UTRA: 20MHz + NR:	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2600.4 00	40694	1	-	-	,	ı	-
40MHz	NR CC1	40	216	Downli nk & Uplink	IM 3	2570.4 00	514080	2550. 96	510192	0	15	6384	514080
E-UTRA: 20MHz +	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2620.4 00	40894	-	-	-	-	,	-
NR: 50MHz	NR CC1	50	270	Downli nk & Uplink	IM 3	2585.4 00	517080	2561. 1	512220	0	15	6408	517080

Table 6.2B.3.1.4.1-5: EN-DC combination DC\_(n)41AA, intra-band contiguous, SCS 30 kHz, 30 kHz NR raster, IM3 test frequencies

EN-DC channel bandwidt h combinati on	CC	Bandwi dth [MHz]	carrierBandwi dth [PRBs]	Rang	е	Carrier centre [MHz] Note 2	Carrier centre [ARFC N]	point A [MHz]	absoluteFrequencyP ointA [ARFCN]	offsetToCar rier [Carrier PRBs]	SS bloc k SCS [kHz ]	GSC N	absoluteFrequenc ySSB [ARFCN]
E-UTRA: 20MHz +	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2600.4 00	40694	-	-	-	-	-	-
NR: 40MHz	NR CC1	40	216	Downli nk & Uplink	IM 3	2570.4 00	514080	2550. 96	510192	0	15	6384	514080
E-UTRA: 20MHz + NR:	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2620.4 00	40894	-	-	-	-	-	-
50MHz	NR CC1	50	270	Downli nk & Uplink	IM 3	2585.4 00	517080	2561. 1	512220	0	15	6408	517080
E-UTRA: 20MHz + NR:	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2640.5 00	41095	-	-	-	-		-
60MHz	NR CC1	60	162	Downli nk & Uplink	IM 3	2600.5 00	520100	2571. 34	514268	0	30	6438	520100

Table 6.2B.3.1.4.1-6: EN-DC combination DC\_(n)41AA, intra-band contiguous, SCS 60 kHz, 15 kHz NR raster, IM3 test frequencies

EN-DC channel bandwidt h combinati on	CC	Bandwi dth [MHz]	carrierBandwi dth [PRBs]	Rang	е	Carrier centre [MHz] Note 2	Carrier centre [ARFC N]	point A [MHz]	absoluteFrequencyP ointA [ARFCN]	offsetToCar rier [Carrier PRBs]	SS bloc k SCS [kHz ]	GSC N	absoluteFrequenc ySSB [ARFCN]
E-UTRA: 20MHz +	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2600.4 00	40694	-	-	-	-	-	-
NR: 40MHz	NR CC1	40	51	Downli nk & Uplink	IM 3	2570.4 00	514080	2552. 04	510408	0	15	6387	514080
E-UTRA: 20MHz + NR:	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2620.4 00	40894	-	-	-	-	ı	-
50MHz	NR CC1	50	65	Downli nk & Uplink	IM 3	2585.4 00	517080	2562	512400	0	15	6411	517080
E-UTRA: 20MHz + NR:	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2640.5 00	41095	ı	-	-	-	-	-
60MHz	NR CC1	60	79	Downli nk & Uplink	IM 3	2600.5 00	520100	2572. 06	514412	0	15	6435	520100

Editor's note: The following lines belong at the end of clause 6.2B.3.1.4.1. As new tables are added to this clause, these lines should always follow the tables.

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1 for TE diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for E-UTRA the cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. NR downlink signals are initially set up according to Annex C.0, C.1, and C.2 and uplink signals according to Annex G.0, G.1, G.2, and G.3.0 of TS 38.521-1 [8].
- 5. The UL Reference Measurement channels are set according to TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG link respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.3.1.4.3.
- 8. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

#### 6.2B.3.1.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 6.2B.3.1.4.1-1 or 6.2B.3.1.4.1-2 on both EN-DC component carriers. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms starting from the first TPC command in this step for the UE to reach  $P_{UMAX}$  level.
- 3. Measure the mean power over all component carriers for the EN-DC configuration, which shall meet the requirements described in table 6.2B.3.1.5.1-1 through to 6.2B.3.1.5.2-6. The period of the measurement shall be at least the continuous duration of one active sub-frame (1ms). For TDD, only slots consisting of only UL symbols are under test.
- NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration table 6.2B.3.1.4.1-1 or 6.2B.3.1.4.1-2, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM PRECODER ENABLED condition.

#### 6.2B.3.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1, with the following exceptions.

# Table 6.2B.3.1.4.3-1: RRCConnectionReconfiguration: nr-Config-r15 for PC3

Derivation Path: TS 36.508 [11], Table 4.6.	.1-8					
Information Element	Value/remark	Comment	Condition			
p-MaxEUTRA-r15	23		Power			
			config A			
			(NOTE 1)			
	20		Power			
			config B			
			(NOTE 2)			
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.						
NOTE 2: Applies when E-UTRA UL trans	mission overlapping with NR UI	L transmission in time.				

# Table 6.2B.3.1.4.3-2: PhysicalCellGroupConfig for PC3

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106						
Information Element	Value/remark	Comment	Condition			
p-NR-FR1	23		Power config A (NOTE 1)			
	20		Power config B (NOTE 2)			
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.  NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.						

# Table 6.2B.3.1.4.3-3: RRCConnectionReconfiguration: nr-Config-r15 for PC2

Information Element	Value/remark	Comment	Condition		
p-MaxEUTRA-r15	26		Power config A (NOTE 1)		
	23		Power config B (NOTE 2)		
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.  NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.					

# Table 6.2B.3.1.4.3-4: PhysicalCellGroupConfig for PC2

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106						
Information Element	Value/remark	Comment	Condition			
p-NR-FR1	26		Power config A (NOTE 1)			
	23		Power config B (NOTE 2)			
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.  NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.						

# 6.2B.3.1.4.3-5: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

Table 6.2B.3.1.4.3-6: RRCConnectionReconfiguration: tdm-PatternConfig if E-UTRA on FDD band and UE does not support dynamic power sharing

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 CHOICE{			Power config A (NOTE 1)
setup SEQUENCE {			
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			
NOTE 1: Applies when E-UTRA UL transmission n	ot overlapping with NR	UL transmission in tir	ne.

6.2B.3.1.4.3.1 Message contents exceptions (network signalled value "NS\_04")

Message contents are according to TS 38.508-1 [6] clause 4.6.1 with the following exceptions for NS\_04:

Table 6.2B.3.1.4.3.1-1: AdditionalSpectrumEmission for MCG and "NS\_04"

Derivation Path: 36.508 [11] clause 4.6.3, Table 4.4.3.3-1					
Information Element	Value/remark	Comment	Condition		
AdditionalSpectrumEmission	1 (NS_04)				

### Table 6.2B.3.1.4.3.1-2: AdditionalSpectrumEmission for SCG and "NS\_04"

Derivation Path: TS 38.508-1 [6] clause 4.6.3, Table 4.6.3-1					
Information Element	Value/remark	Comment	Condition		
AdditionalSpectrumEmission	1 (NS_04)				

6.2B.3.1.4.3.2 Message contents exceptions (network signalled value "NS\_35")

Message contents are according to TS 38.508-1 [6] clause 4.6.1 with the following exceptions for NS\_35:

Table 6.2B.3.1.4.3.2-1: Additional Spectrum Emission for MCG and "NS\_35"

Derivation Path: 36.508 [11] clause 4.6.3, Table 4.4.3.3-1					
Information Element	Value/remark	Comment	Condition		
AdditionalSpectrumEmission	1 (NS_35)				

Table 6.2B.3.1.4.3.2-2: Additional Spectrum Emission for for SCG "NS\_35"

Derivation Path: TS 38.508-1 [5] clause 4.6.3, Table 4.6.3-1					
Information Element	Value/remark	Comment	Condition		
AdditionalSpectrumEmission	1 (NS_35)				

#### 6.2B.3.1.5 Test requirement

Table: 6.2B.3.1.5-1: Test Tolerance for UE maximum output power (LTE, NR TX separately)

Uplink TX		f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6GHz
LTE	BW ≤ 20MHz	0.7	1.0	1.3
NR	BW ≤ 40MHz	0.7 dB	1.0 dB	1.0
	40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0

# 6.2B.3.1.5.1 Test requirement for network signalled value "NS\_35"

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in table 6.2B.3.1.5.1-1. The allowed A-MPR values specified in table 6.2B.3.1.3-1 are in addition to the allowed MPR requirements specified in clause 6.2B.1.1.3. For the UE maximum output power modified by MPR and/or A-MPR, the power limits specified in table 6.2B.1.1.3-1 apply.

Table 6.2B.3.1.5.1-1: UE Power Class test requirements for network signalled value "NS\_35" for UEs not supporting dynamic power sharing

Test ID	Test freq. rang e	E- UTRA BW	NR BW	Modulation	P <sub>PowerC</sub> lass (dBm)	ΔP <sub>Po</sub> werClas s (dB)	A-MPR <sub>c</sub> (dB)	ΔTC,c (dB) Note 7	P <sub>CMAX</sub> ,c (dBm )	T(P <sub>CMAX</sub> _ L,f,c) (dB)	T <sub>L,c</sub> (dB)	Upper limit	Lower limit
1, 8, 15, 22, 25	Low	5	5	E-UTRA/NR	23	0	6.0	0	17.0	5	+2/-3	25+TT	12-TT
1, 8, 15, 22, 25	Low	5	15	E-UTRA/NR	23	0	6.0	0	17.0	5	+2/-3	25+TT	12-TT
1, 8, 15, 22, 25	High	5	5	E-UTRA/NR	23	0	6.0	0	17.0	5	+2/-3	25+TT	12-TT
1, 8, 15, 22, 25	High	15	5	E-UTRA/NR	23	0	6.0	0	17.0	5	+2/-3	25+TT	12-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	Low	5	5	E-UTRA/NR	23	0	10.5	0	12.5	6	+2/-3	25+TT	6.5-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	Low	5	15	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	High	5	5	E-UTRA/NR	23	0	10.5	0	12.5	6	+2/-3	25+TT	6.5-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	High	15	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
3, 10, 17	Low	5	5	E-UTRA/NR	23	0	12.5	0	10.5	6	+2/-3	25+TT	4.5-TT
3, 14, 17	Low	5	15	E-UTRA/NR	23	0	16.0	0	7.0	7	+2/-3	25+TT	0-TT
4, 11, 18	High	5	5	E-UTRA/NR	23	0	12.5	0	10.5	12.5	+2/-3	25+TT	4.5-TT
4, 11, 18	High	15	5	E-UTRA/NR	23	0	16.0	0	7.0	16.0	+2/-3	25+TT	0-TT
6, 13, 20	Low	5	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
6, 13, 20	Low	5	15	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
7, 14, 21	High	5	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
7, 14, 21	High	15	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
28, 35, 42, 45	Low	5	5	E-UTRA/NR	23	0	6.5	0	16.5	5	+2/-3	25+TT	11.5-TT
28, 35, 42, 45	Low	5	15	E-UTRA/NR	23	0	6.5	0	16.5	5	+2/-3	25+TT	11.5-TT
28, 35, 42, 45	High	5	5	E-UTRA/NR	23	0	6.5	0	16.5	5	+2/-3	25+TT	11.5-TT
28, 35, 42, 45	High	15	5	E-UTRA/NR	23	0	6.5	0	16.5	5	+2/-3	25+TT	11.5-TT
29, 35, 42, 45	Low	5	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6.5-TT
29, 35, 42, 45	Low	5	15	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
29, 35, 42, 45	High	5	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6.5-TT
29, 35, 42, 45	High	15	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3		6-TT
30, 34, 37, 41	Low	5	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
30, 34, 37,	Low	5	15	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3		6-TT
31, 33, 38, 40	High	5	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3		6-TT
31, 33, 38, 40	High	15	5	E-UTRA/NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT

Table 6.2B.3.1.5.1-1A: UE Power Class test requirements for network signalled value "NS\_35" for UEs supporting dynamic power sharing

Test ID	Test freq. range	E- UTRA BW	NR BW	Modulation	P <sub>PowerC</sub> lass (dBm)	ΔP <sub>Po</sub> werClas s (dB)	A-MPR <sub>c</sub> (dB)	ΔTC,c (dB) Note 7	P <sub>CMAX</sub> ,c (dBm	T(P <sub>CMAX</sub> _ L,f,c) (dB)	T <sub>L,c</sub> (dB)	Upper limit	Lower limit
1, 8, 15, 22, 25	Low	5	5	E-UTRA	23	0	8.5	0	14.5	5	+2/-3	25+TT	9.5-TT
1, 8, 15, 22, 25	Low	5	5	NR	23	0	8.5	0	14.5	5	+2/-3	25+TT	9.5-TT
1, 8, 15, 22, 25	Low	5	15	E-UTRA	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
1, 8, 15, 22, 25	Low	5	15	NR	23	0	6.5	0	16.5	5	+2/-3	25+TT	11.5-TT
1, 8, 15, 22, 25	High	5	5	E-UTRA	23	0	8.5	0	14.5	5	+2/-3	25+TT	9.5-TT
1, 8, 15, 22, 25	High	5	5	NR	23	0	8.5	0	14.5	5	+2/-3	25+TT	9.5-TT
1, 8, 15, 22, 25	High	15	5	E-UTRA	23	0	6.5	0	16.5	5	+2/-3	25+TT	11.5-TT
1, 8, 15, 22, 25	High	15	5	NR	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	Low	5	5	E-UTRA	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	Low	5	5	NR	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	Low	5	15	E-UTRA	23	0	16.0	0	7.0	7	+2/-3	25+TT	0-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	Low	5	15	NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	High	5	5	E-UTRA	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	High	5	5	NR	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	High	15	5	E-UTRA	23	0	11.5	0	11.5	6	+2/-3	25+TT	5.5-TT
2, 5, 9, 12, 16, 19, 23, 24, 2, 26, 27	High	15	5	NR	23	0	16.0	0	7.0	7	+2/-3	25+TT	0-TT
3, 10, 17	Low	5	5	E-UTRA/	23	0	12.5	0	10.5	6	+2/-3		4.5-TT
3, 10, 17	Low	5	15 5	E-UTRA	23	0	16.0	0	7.0	7	+2/-3 +2/-3	25+TT	0-TT
4, 11, 18 4, 11, 18	High High	5 15	5 5	NR NR	23 23	0	13.0 16.0	0	10.0 7.0	6 7	+2/-3	25+TT 25+TT	4-TT 0-TT
6, 17, 20	Low	5	5	E-UTRA/	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
6, 17, 20	Low	5	15	E-UTRA	23	0	16.5	0	6.5	7	+2/-3	25+TT	-0.5-TT
7, 14, 21	High	5	5	NR	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
7, 14, 21	High	15	5	NR	23	0	16.0	0	7.0	7	+2/-3	25+TT	0-TT
28, 35, 42, 45	Low	5	5	E-UTRA	23	0	9.5	0	13.5	5	+2/-3	25+TT	8.5-TT
28, 35, 42, 45	Low	5	5	NR	23	0	9.5	0	13.5	5	+2/-3	25+TT	8.5-TT
28, 35, 42, 45	Low	5	15	E-UTRA	23	0	13.5	0	9.5	6	+2/-3	25+TT	3.5-TT

28, 35, 42, 45	Low	5	15	NR	23	0	7.0	0	16.0	5	+2/-3	25+TT	11-TT
28, 35, 42, 45	High	5	5	E-UTRA	23	0	9.5	0	13.5	5	+2/-3	25+TT	8.5-TT
28, 35, 42, 45	High	5	5	NR	23	0	9.5	0	13.5	5	+2/-3	25+TT	8.5-TT
28, 35, 42, 45	High	15	5	E-UTRA	23	0	7.0	0	16.0	5	+2/-3	25+TT	11-TT
28, 35, 42, 45	High	15	5	NR	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
29, 36, 43, 46	Low	5	5	E-UTRA	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
29, 36, 43, 46	Low	5	5	NR	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
29, 36, 43, 46	Low	5	15	E-UTRA	23	0	16.0	0	7.0	7	+2/-3	25+TT	0-TT
29, 36, 43, 46	Low	5	15	NR	23	0	11.0	0	12.0	6	+2/-3	25+TT	6-TT
29, 36, 43, 46	High	5	5	E-UTRA	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
29, 36, 43, 46	High	5	5	NR	23	0	13.0	0	10.0	6	+2/-3	25+TT	4-TT
29, 36, 43, 46	High	15	5	E-UTRA	23	0	11.5	0	11.5	6	+2/-3	25+TT	0-TT
29, 36, 43, 46	High	15	5	NR	23	0	16.0	0	7.0	7	+2/-3	25+TT	5.5-TT
30, 37	Low	5	5	E-UTRA/	23	0	13.0	0	10.0	6		25+TT	4-TT
30, 37	Low	5	15	E-UTRA	23	0	16.0	0	7.0	7		25+TT	0-TT
31, 38	High	5	5	NR	23	0	13.0	0	10.0	6		25+TT	4-TT
31, 38	High	15	5	NR	23	0	16.0	0	7.0	7		25+TT	0-TT
34, 41	High	5	5	NR	23	0	13.0	0	10.0	6		25+TT	4-TT
34, 41	High	15	5	NR	23	0	16.0	0	7.0	7		25+TT	0-TT
33, 40	Low	5	5	E-UTRA/	23	0	13.0	0	10.0	6		25+TT	4-TT
33, 40	Low	5	15	E-UTRA	23	0	16.5	0	6.5	7		25+TT	-0.5-TT
NOTE 8: T	T for eac	h freque	ncy and c	hannel bandw	ridth is sp	ecified	in Table 6.	2B.3.1.5	-1.				

6.2B.3.1.5.2 Test requirement for network signalled value "NS 04"

Table 6.2B.3.1.5.2-1: UE Power Class 3 test requirements for NS\_04, supporting dynamic power sharing and E-UTRA UL transmission overlapping with NR UL transmission

Test ID	Test SCS (kHz)	A-MPR <sub>tot</sub> (dB)	PEN-DC, tot_L (dBm)	PEN-DC, tot_H (dBm)	TLOW (PCMAX_L) (dB)	THIGH (PCMAX_H) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22, 25, 28, 35, 42, 45 (Note 1, 4)	15, 30, 60	3	20	23	6	2	25+TT	14-TT
1, 8, 15, 22, 25, 28, 35, 42, 45 (Note 1, 5)	15, 30, 60	9	14	23	6	2	25+TT	8-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 4, 5)	15	11	12	23	6	2	25+TT	6-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 4)	30, 60	6	17	23	5	2	25+TT	12-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 5)	30, 60	11	12	23	6	2	25+TT	6-TT
48 (Note 3, 4)	15	7	16	23	5	2	25+TT	11-TT
48 (Note 3, 4)	30, 60	12	11	23	6	2	25+TT	5-TT
48 (Note 3, 5)	15, 30, 60	7	16	23	5	2	25+TT	11-TT

NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.

NOTE 4: When  $F_{IM3,low\_block,low} \ge 2490.5 \text{ MHz}$  (Case A)

NOTE 5: When F<sub>IM3,low\_block,low</sub> < 2490.5 MHz (Case B)

NOTE 6: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.1.5-1.

Table 6.2B.3.1.5.2-2: UE Power Class 3 test requirements for NS\_04, supporting dynamic power sharing and E-UTRA UL transmission not overlapping with NR UL transmission

Test ID	Test SCS (kHz)	MPR (dB)	A-MPR (dB)	P <sub>EN-DC</sub> , tot_L (dBm)	P <sub>EN-DC</sub> , tot_H (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	THIGH (PCMAX_H) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41 (Note 1)	15, 30, 60	0	3	20	23	4	2	25+TT	16-TT
4 (Note 2)	15, 30, 60	0.5	0	22.5	23	2	2	25+TT	20.5-TT
6 (Note 2)	15, 30, 60	0	3.5	19.5	23	3.5	2	25+TT	16-TT
11 (Note 2)	15, 30, 60	1	0	22	23	2	2	25+TT	20-TT
13 (Note 2)	15, 30, 60	0	4	19	23	3.5	2	25+TT	15.5-TT
18 (Note 2)	15, 30, 60	2	0	21	23	2	2	25+TT	19-TT
20 (Note 2)	15, 30, 60	0	4	19	23	3.5	2	25+TT	15.5-TT
31 (Note 2)	15, 30, 60	3	0	20	23	2.5	2	25+TT	17.5-TT
33 (Note 2)	15, 30, 60	0	5.5	17.5	23	5	2	25+TT	12-TT
38 (Note 2)	15, 30, 60	3	0	20	23	2.5	2	25+TT	17.5-TT
40 (Note 2)	15, 30, 60	0	5.5	17.5	23	5	2	25+TT	12-TT

NOTE 1: Test configuration IDs without transmission overlap, 1RB E-UTRA allocation, A-MPR requirements in TS 36.101 [5] apply

NOTE 2: Test configuration IDs without transmission overlap, 1RB NR allocation, A-MPR requirements in TS 38.101-1 [2] apply.

NOTE 3: Void.

NOTE 4: Void.

NOTE 5: Void.

NOTE 6: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.1.5-1.

Table 6.2B.3.1.5.2-3: UE Power Class 3 test requirements for NS\_04, not supporting dynamic power sharing and E-UTRA UL transmission overlapping with NR UL transmission

Test ID	Test SCS (kHz)	A-MPR <sub>tot</sub> (dB)	P <sub>EN-DC</sub> , tot_L (dBm)	P <sub>EN-DC</sub> , tot_H (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	T <sub>HIGH</sub> (P <sub>CMAX_</sub> H) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22, 25, 28, 35, 42, 45 (Note 1, 4)	15, 30, 60	6	17	23	5	2	25+TT	12-TT
1, 8, 15, 22, 25, 28, 35, 42, 45 (Note 1, 5)	15, 30, 60	12	11	23	6	2	25+TT	5-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 4, 5)	15	14	9	23	7	2	25+TT	2-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 4)	30, 60	9	14	23	6	2	25+TT	8-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 5)	30, 60	14	9	23	7	2	25+TT	2-TT
48 (Note 3, 4)	15	10	13	23	6	2	25+TT	7-TT
48 (Note 3, 4)	30, 60	15	8	23	7	2	25+TT	1-TT
48 (Note 3, 5)	15, 30, 60	10	13	23	6	2	25+TT	7-TT

- NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 4: When F<sub>IM3,low\_block,low</sub> ≥ 2490.5 MHz (Case A)
- NOTE 5: When F<sub>IM3.low</sub> block.low < 2490.5 MHz (Case B)
- NOTE 6: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.1.5-1.

Table 6.2B.3.1.5.2-4: UE Power Class 2 test requirements for NS\_04, supporting dynamic power sharing and E-UTRA UL transmission overlapping with NR UL transmission

Test ID	Test SCS (kHz)	A-MPR <sub>tot</sub> (dB)	P <sub>EN-DC</sub> , tot_L (dBm)	P <sub>EN-DC</sub> , tot_H (dBm)	TLOW (PCMAX_L) (dB)	THIGH (PCMAX_H) (dB)	Upper limit (dBm)	Lower limi (dBm)
1, 8, 15, 22, 25, 28, 35, 42, 45 (Note 1, 4)	15, 30, 60	3	23	26	3	2	28+TT	20-TT
1, 8, 15, 22, 25, 28, 35, 42, 45 (Note 1, 5)	15, 30, 60	9	17	26	5	2	28+TT	12-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 4, 5)	15	11	15	26	6	2	28+TT	9-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 4)	30, 60	6	20	26	6	2	28+TT	14-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 5)	30, 60	11	15	26	6	2	28+TT	9-TT
48 (Note 3, 4)	15	7	19	26	5	2	28+TT	14-TT
48 (Note 3, 4)	30, 60	12	14	26	6	2	28+TT	8-TT
48 (Note 3, 5)	15, 30, 60	7	19	26	5	2	28+TT	14-TT

- NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 4: When F<sub>IM3,low\_block,low</sub> ≥ 2490.5 MHz (Case A)
- NOTE 5: When FIM3,low\_block,low < 2490.5 MHz (Case B)
- NOTE 6: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.1.5-1.

Table 6.2B.3.1.5.2-5: UE Power Class 2 test requirements for NS\_04, supporting dynamic power sharing and E-UTRA UL transmission not overlapping with NR UL transmission (Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC2 or Not present by powerClassNRPart-r16))

Test ID	Test SCS (kHz)	MPR (dB)	A-MPR (dB)	P <sub>EN-DC</sub> , tot_L (dBm)	P <sub>EN-DC</sub> , tot_H (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	T <sub>HIGH</sub> (Р <sub>СМАХ_</sub> н) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41 (Note 1)	15, 30, 60	0	3	23	26	2	2	28+TT	21-TT
4 (Note 2)	15, 30, 60	3.5	0	22.5	26	2	2	28+TT	20.5-TT
6 (Note 2)	15, 30, 60	0	5.5	20.5	26	2.5	2	28+TT	18-TT
11 (Note 2)	15, 30, 60	3.5	0	22.5	26	2	2	28+TT	20.5-TT
13 (Note 2)	15, 30, 60	0	6	20	26	2.5	2	28+TT	17.5-TT
18 (Note 2)	15, 30, 60	3.5	0	22.5	26	2	2	28+TT	20.5-TT
20 (Note 2)	15, 30, 60	0	6	20	26	2.5	2	28+TT	17.5-TT
31 (Note 2)	15, 30, 60	3.5	0	22.5	26	2	2	28+TT	20.5-TT
33 (Note 2)	15, 30, 60	0	7.5	18.5	26	4	2	28+TT	14.5-TT
38 (Note 2)	15, 30, 60	3.5	0	22.5	26	2	2	28+TT	20.5-TT
40 (Note 2)	15, 30, 60	0	7.5	18.5	26	4	2	28+TT	14.5-TT

NOTE 1: Test configuration IDs without transmission overlap, 1RB E-UTRA allocation, A-MPR requirements in TS 36.101 [5] apply.

NOTE 2: Test configuration IDs without transmission overlap, 1RB NR allocation, A-MPR requirements in TS 38.101-1 [2] apply.

NOTE 4: Void.

NOTE 4: Void. NOTE 5: Void.

NOTE 6: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.1.5-1.

Table 6.2B.3.1.5.2-5a: UE Power Class 2 test requirements for NS\_04, E-UTRA UL transmission not overlapping with NR UL transmission (Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC3 by *powerClassNRPart-r16*))

Test ID	Test SCS (kHz)	MPR (dB)	A-MPR (dB)	P <sub>EN-DC, tot_L</sub> (dBm)	P <sub>EN-DC</sub> , tot_H (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	THIGH (PCMAX_H) (dB)	Upper limit (dBm)	Lower limit (dBm)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41 (Note 1)	15, 30, 60	0	3	23	26	2	2	28+TT	21+TT
4 (Note 2)	15, 30, 60	0.5	0	22.5	23	2	2	25+TT	20.5+TT
6 (Note 2)	15, 30, 60	0	3.5	19.5	23	3.5	2	25+TT	16+TT
11 (Note 2)	15, 30, 60	1	0	22	23	2	2	25+TT	20+TT
13 (Note 2)	15, 30, 60	0	4	19	23	3.5	2	25+TT	15.5+TT
18 (Note 2)	15, 30, 60	2	0	21	23	2	2	25+TT	19+TT
20 (Note 2)	15, 30, 60	0	4	19	23	3.5	2	25+TT	15.5+TT
31 (Note 2)	15, 30, 60	3	0	20	23	2.5	2	25+TT	17.5+TT
33 (Note 2)	15, 30, 60	0	5.5	17.5	23	5	2	25+TT	12.5+TT
38 (Note 2)	15, 30, 60	3	0	20	23	2.5	2	25+TT	17.5+TT
40 (Note 2)	15, 30, 60	0	5.5	17.5	23	5	2	25+TT	12.5+TT

NOTE 1: Test configuration IDs without transmission overlap, 1RB E-UTRA allocation, A-MPR requirements in TS 36.101 [5] apply.

NOTE 2: Test configuration IDs without transmission overlap, 1RB NR allocation, A-MPR requirements in TS 38.101- [2] apply.

NOTE 3: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.1.5-1.

Table 6.2B.3.1.5.2-6: UE Power Class 2 test requirements for NS\_04, not supporting dynamic power sharing and E-UTRA UL transmission overlapping with NR UL transmission

Test ID	Test SCS (kHz)	A-MPR <sub>tot</sub> (dB)	P <sub>EN-DC</sub> , tot_L (dBm)	P <sub>EN-DC</sub> , tot_H (dBm)	T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	T <sub>HIGH</sub> (P <sub>CMAX_</sub> H) (dB)	Upper limit (dBm)	Lower limit (dBm)
1, 8, 15, 22, 25, 28, 35, 42, 45 (Note 1, 4)	15, 30, 60	6	20	26	6	2	28+TT	14-TT
1, 8, 15, 22, 25, 28, 35, 42, 45 (Note 1, 5)	15, 30, 60	12	14	26	6	2	28+TT	8-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 4, 5)	15	14	12	26	6	2	28+TT	6-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 4)	30, 60	9	17	26	5	2	28+TT	12-TT
2, 5, 9, 12, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, 47 (Note 2, 5)	30, 60	14	12	26	6	2	28+TT	6-TT
48 (Note 3, 4)	15	10	16	26	5	2	28+TT	11-TT
48 (Note 3, 4)	30, 60	15	11	26	6	2	28+TT	5-TT
48 (Note 3, 5)	15, 30, 60	10	16	26	5	2	28+TT	11-TT

- NOTE 1: Test configuration IDs with transmission overlap with full RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 2: Test configuration IDs with transmission overlap with 1RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 3: Test configuration IDs with transmission overlap with edge full RB allocation, requirements in TS 38.101-3 [4] apply.
- NOTE 4: When F<sub>IM3,low\_block,low</sub> ≥ 2490.5 MHz (Case A)
- NOTE 5: When FIM3,low block,low < 2490.5 MHz (Case B)
- NOTE 6: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.1.5-1.

## 6.2B.3.2 UE Additional Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC

Editor's note: This test case is incomplete. The following aspects are either missing or not yet determined:

- Test frequencies for the Minimum W<sub>GAP</sub>
- Test requirements for non-overlapping transmission of non-DPS UE need further investigation

### 6.2B.3.2.1 Test purpose

Additional emission requirements can be signalled by the network with network signalling value indicated by the field *additionalSpectrumEmission*. To meet these additional requirements, additional maximum power reduction (A-MPR) is allowed for the maximum output power as specified in Table 6.2B.1.1.3-1. Unless stated otherwise, an A-MPR of 0 dB shall be used.

## 6.2B.3.2.2 Test applicability

The requirements of this test apply in test case 6.5B.2.2.2 Additional spectrum emission mask for network signalled values NS\_04 to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

## 6.2B.3.2.3 Minimum conformance requirements

For intra-band non-contiguous EN-DC band combinations with additional requirements the A-MPR allowed are specified in table 6.2B.3.2.3-1 for UEs configured with EN-DC and combinations of network signalling values indicated in the E-UTRA and NR cell group(s). Unless otherwise stated the A-MPR specified in subclause6.2B.3.2 for intra-band non-contiguous EN-DC configurations is the total power reduction allowed including MPR. For UEs scheduled with single uplink transmission, AMPR in subclause 6.2.4 of [4] and 6.2.3 of [2] apply.

Table 6.2B.3.2.3-1: Allowed power reduction for intra-band non-contiguous EN-DC

DC configuration	Requirement (clause)	E-UTRA network signalling value	NR network signalling value	A-MPR (clause)
DC_41A_n41A <sup>1</sup>	6.6.3.3.19 and 6.6.2.2.2 of TS 36.101 [5] and 6.5.2.3.2 and 6.5.3.3.1 of TS 38.101-1 [2]	NS_01 or NS_04	NS_04	6.2B.3.2.3.1

NOTE 1: Only applies to UEs that support dual UL transmission for this EN-DC combination.

NOTE 2: The requirement applies when the combination of network signalling values in the two CGs is set (only for UEs configured with EN-DC).

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.3.2.

Exception requirements for both NR and E-UTRA are defined for this test when transmission on E-UTRA overlap in time with NR.LTE anchor agnostic approach is not applied for this case and referred to as sub-test 1. E-UTRA test point analysis is included and E-UTRA measurements are performed.

Exception requirements for both NR and E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR, for a UE that doesn't support dynamic power sharing. LTE anchor agnostic approach is not applied for this case. E-UTRA test point analysis is included and E-UTRA measurements are performed.

No exception requirements for NR or E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR, for a UE that supports dynamic power sharing. LTE anchor agnostic approach is not applied for this case.

#### 6.2B.3.2.3.1 A-MPR for NS 04

When the UE is configured for B41/n41 intra-band non-contiguous EN-DC and it receives IE NS\_04, the UE determines the total allowed maximum output power reduction as specified in this clause. The A-MPR for EN-DC defined in this clause is used instead of MPR defined in 6.2B.2.2, not additively, so EN-DC MPR=0 when NS\_04 is signalled.

For UE supporting dynamic power sharing the following:

- for the MCG, A-MPR<sub>c</sub> in accordance with TS 36.101 [5]
- for the SCG,

 $A-MPR'_c = A-MPR_{NR} = MAX(A-MPR_{single,NR}, A-MPR_{EN-DC})$ 

- for the total configured transmission power,

```
A-MPR_{tot} = P_{PowerClass,EN-DC} - min(P_{PowerClass,EN-DC}, 10*log_{10}(10^{(P_{PowerClass,E-UTRA}-A-MPR_{E-UTRA})/10) + 10^{((P_{PowerClass,NR}-A-MPR_{NR})/10))}
```

where

 $A-MPR_{E-UTRA} = MAX(A-MPR_{single,E-UTRA} + MPR_{single,E-UTRA}, A-MPR_{EN-DC})$ 

 $A-MPR_{EN-DC} = MAX(A-MPR_{IM3}, A-MPR_{ACLRoverlap})$ 

with

- A-MPR<sub>single, E-UTRA</sub> is the A-MPR defined for the E-UTRA transmission in TS 38.101-3 [4]
- A-MPR<sub>single,NR</sub> is the A-MPR defined for the NR transmission in TS 38.101-1 [2]
- MPR<sub>single,E-UTRA</sub> is the MPR defined for the E-UTRA transmission in TS 38.101-3 [4]

For UEs not supporting dynamic power sharing the following

- for the MCG,

 $A-MPR_c = MAX(A-MPR_{single, E-UTRA} + MPR_{single, E-UTRA}, A-MPR_{IM3}, A-MPR_{ACLRoverlap})$ 

- for the SCG,

 $A-MPR'_c = MAX(A-MPR_{single,NR}, A-MPR_{IM3}, A-MPR_{ACLRoverlap})$ 

where

- A-MPR<sub>single, E-UTRA</sub> is the A-MPR defined for the E-UTRA transmission in TS 36.101 [5]
- A-MPR<sub>single,NR</sub> is the A-MPR defined for the NR transmission in TS 38.101-1 [2]
- MPR<sub>single,E-UTRA</sub> is the MPR defined for the E-UTRA transmission in TS 36.101 [5]

The UE determines the Channel Configuration Case and the value of A-MPR<sub>IM3</sub> as follows:

If AND(  $F_{IM3,low\_block,high} < F_{filter,low}$ , MAX(  $SEM_{-13,high}$ ,  $F_{IM3,high\_block,low}$ ) >  $F_{filter,high}$ )

Channel Configuration Case C. A-MPR<sub>IM3</sub> defined in Clause 6.2B.3.1.3.2.1

Else

Channel Configuration Case D. A-MPR<sub>IM3</sub> defined in Clause 6.2B.3.1.3.2.2

#### where

- $F_{IM3,low\_block,high} = (2 * F_{low\_channel,high\_edge}) F_{high\_channel,low\_edge}$
- $F_{IM3,high\_block,low} = (2 * F_{high\_channel,low\_edge}) F_{low\_channel,high\_edge}$
- Flow\_channel,low\_edge is the lowermost frequency of lower transmission bandwidth configuration.
- F<sub>low channel,high edge</sub> is the uppermost frequency of lower transmission bandwidth configuration.
- Fhigh channel, low edge is the lowermost frequency of upper transmission bandwidth configuration.
- F<sub>high\_channel,high\_edge</sub> is the uppermost frequency of upper transmission bandwidth configuration.
- $F_{\text{filter,low}} = 2480 \text{ MHz}$
- $F_{filter,high} = 2745 \text{ MHz}$
- SEM<sub>-13,high</sub> = Threshold frequency where upper spectral emission mask for upper channel drops from -13 dBm / 1MHz to -25 dBm / 1MHz, as specified in Clause 6.6.2.2.2 in [5] and Subclause 6.5.2.3.2 in [2] respectively.

Where the transmission bandwidth configuration for NR is the maximum frequency span covering all the configured SCSSpecificCarrier for scenarios that carrier bandwidths with different SCS can be fully overlapped.

The UE determines the value of A-MPR<sub>ACLRoverlap</sub> as specified in Table 6.2B.3.2.3.1-1:

Table 6.2B.3.2.3.1-1: A-MPR<sub>ACLRoverlap</sub>

W <sub>gap</sub>	A-MPR <sub>ACLRoverlap</sub>
< BWchannel, E-UTRA + BWchannel, NR	4 dB
≥ BW <sub>channel,E-UTRA</sub> + BW <sub>channel,NR</sub>	0 dB
NOTE 1: Wgap = Fhigh_channel,low_edge - Flow_chan	nel,high_edge

6.2B.3.2.4 Test description

#### 6.2B.3.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and subcarrier spacing based on NR operating bands specified in table 5.5B.3-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in test configuration table 6.2B.3.1.4.1-1 through 6.2B.3.1.4.1-2 with additional IM3 test frequencies for NS\_04 in 6.2B.3.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A2. Configurations of PDSCH and PDCCH before measurement are specified in Annex TS 36.521-1 [10] Annex C and in Annex C2 for LTE link and NR link respectively.

Table 6.2B.3.2.4.1-0: E-UTRA test configuration table

	E-UTRA Test Parameters								
E-UTRA Channel	E-UTRA Test Frequency	Downlink	Uplink						
Bandwidth	Turk too and included in the analysis of the same of t								
20 MHz	Low range and High range (Note 2)		QPSK	100					
NOTE 1: E-UTRA Test Frequency as specified in TS 36.508 [6] clause 4.3.1  NOTE 2: NR carrier shall be the outermost carrier during test.									

### Table 6.2B.3.2.4.1-1: Additional IM3 Test Frquencies for NS\_04 intra-band non-contiguous EN-DC

Additional Initial Condition							
Additional IM3 Test Frquencies	if maximum $W_{\text{GAP}}$ > 88.4 MHz, and SCS 15 kHz, 15 kHz NR raster then IM3 test frequencies as specified in Table 6.2B.3.2.4.1-2.						
	if maximum $W_{\text{GAP}}$ > 88.4 MHz, and SCS 15 kHz, 30 kHz NR raster then IM3 test frequencies as specified in Table 6.2B.3.2.4.1-3.						
	if maximum W <sub>GAP</sub> > 88.4 MHz, and SCS 15 kHz, 60 kHz NR raster then IM3 test frequencies as specified in Table 6.2B.3.2.4.1-4.						

Table 6.2B.3.2.4.1-2: EN-DC combination DC\_41A\_n41A, intra-band non-contiguous, SCS 15 kHz, 15 kHz NR raster, IM3 test frequencies

EN-DC channel bandwidt h combinati	CC	Bandwi dth [MHz]	carrierBandwi dth [PRBs]	Rang	е	Carrier centre [MHz] Note 2	Carrier centre [ARFC N]	point A [MHz]	absoluteFrequencyP ointA [ARFCN]	offsetToCar rier [Carrier PRBs]	SS bloc k SCS [kHz	GSC N	absoluteFrequenc ySSB [ARFCN]
E-UTRA: 20MHz + NR: 40MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2666.7 00	41357	-	-	-	-	-	-
	NR CC1	40	216	Downli nk & Uplink	IM 3	2548.3 00	509660	2528. 86	505772	0	15	6327	509660
NR: 40MHz + E-UTRA: 20MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2558.3 00	40273	-	-	-	-	-	-
	NR CC1	40	216	Downli nk & Uplink	IM 3	2676.7 00	535340	2657. 26	531452	0	15	6648	535340
E-UTRA: 20MHz + NR: 50MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2524.9 00	39939	1	-	-	-	-	-
	NR CC1	50	270	Downli nk & Uplink	IM 3	2665.0 00	533000	2640. 7	528140	0	15	6606	533000
NR: 50MHz + E-UTRA: 20MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2666.7 00	41357	-	-	-	-	-	-
	NR CC1	50	270	Downli nk & Uplink	IM 3	2543.3 00	508660	2519	503800	0	15	6303	508660

Table 6.2B.3.2.4.1-3: EN-DC combination DC\_41A\_n41A, intra-band non-contiguous, SCS 30 kHz, 30 kHz NR raster, IM3 test frequencies

EN-DC channel bandwidt h combinati	СС	Bandwi dth [MHz]	carrierBandwi dth [PRBs]	Rang	е	Carrier centre [MHz] Note 2	Carrier centre [ARFC N]	point A [MHz]	absoluteFrequencyP ointA [ARFCN]	offsetToCar rier [Carrier PRBs]	SS bloc k SCS [kHz ]	GSC N	absoluteFrequenc ySSB [ARFCN]
E-UTRA: 20MHz + NR: 40MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2666.7 00	41357 -		-	-	-	-	-
	NR CC1	40	106	Downli nk & Uplink	IM 3	2548.3 00	509660	2529. 22	505844	0	30	6333	509660
NR: 40MHz + E-UTRA: 20MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2558.3 00	40273	-	-	-	-	-	-
	NR CC1	40	106	Downli nk & Uplink	IM 3	2676.7 00	535340	2657. 62	531524	0	30	6654	535340
E-UTRA: 20MHz + NR: 50MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2524.9 00	39939	-	-	-	-	-	-
	NR CC1	50	133	Downli nk & Uplink	IM 3	2665.0 00	533000	2641. 06	528212	0	30	6612	533000
NR: 50MHz + E-UTRA: 20MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2666.7 00	41357	1	-	-	-	-	-
	NR CC1	50	133	Downli nk & Uplink	IM 3	2543.3 00	508660	2519. 36	503872	0	30	6309	508660

Table 6.2B.3.2.4.1-4: EN-DC combination DC\_41A\_n41A, intra-band non-contiguous, SCS 60 kHz, 15 kHz NR raster, IM3 test frequencies

EN-DC channel bandwidt h combinati	CC	Bandwi dth [MHz]	carrierBandwi dth [PRBs]	Rang	е	Carrier centre [MHz] Note 2	Carrier centre [ARFC N]	point A [MHz]	absoluteFrequencyP ointA [ARFCN]	offsetToCar rier [Carrier PRBs]	SS bloc k SCS [kHz	GSC N	absoluteFrequenc ySSB [ARFCN]
E-UTRA: 20MHz + NR: 40MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2666.7 00	41357	-	-	-	-	-	-
	NR CC1	40	51	Downli nk & Uplink	IM 3	2548.3 00	509660	2529. 94	505988	0	15	6330	509660
NR: 40MHz + E-UTRA: 20MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2558.3 00	40273	-	-	-	-	1	-
	NR CC1	40	51	Downli nk & Uplink	IM 3	2676.7 00	535340	2658. 34	531668	0	15	6651	535340
E-UTRA: 20MHz + NR: 50MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2524.9 00	39939	-	-	-	-	-	-
	NR CC1	50	65	Downli nk & Uplink	IM 3	2665.0 00	535340	2653. 3	530660	0	15	6639	535340
NR: 50MHz + E-UTRA: 20MHz	E- UTR A CC1	20	100	Downli nk & Uplink	IM 3	2666.7 00	41357	-	-	-	-	-	-
	NR CC1	50	65	Downli nk & Uplink	IM 3	2543.3 00	508660	2519. 9	503980	0	15	6306	508660

Editor's note: The following lines belong at the end of clause 6.2B.3.2.4.1. As new tables are added to this clause, these lines should always follow the tables.

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for TE diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. NR downlink signals are initially set up according to Annex C.0, C.1, and C.2 and uplink signals according to Annex G.0, G.1, G.2, and G.3.0 of TS 38.521-1 [8].
- 5. The UL Reference Measurement channels are set according to TS 36.521-1 [10] Annex A.2 and Annex A for LTE link and NR link respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.3.2.4.3.
- 8. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

## 6.2B.3.2.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 6.2B.3.2.4.1-1 on both EN-DC component carriers. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms starting from the first TPC command in this step for the UE to reach  $P_{UMAX}$  level.
- 3. Measure the mean power over all component carriers for the EN-DC configuration, which shall meet the requirements described in table 6.2B.3.2.5-1. The period of the measurement shall be at least the continuous duration of one sub-frame (1ms).
- NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration table 6.2B.3.1.4.1-2, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

#### 6.2B.3.2.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1, with the following exceptions.

Table 6.2B.3.2.4.3-1: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Tab	ole 4.6.1-8		
Information Element	Value/remark	Comment	Condition
	23		Apply if run test points with E-UTRA UL transmission not overlapping with NR UL transmission in time for PC3 UE
p-MaxEUTRA-r15	20		Apply if run test points with E-UTRA UL transmission overlapping with NR UL transmission in time for PC3 UE, and UE doesn't support dynamic power sharing.
	23		Apply if run test points with E-UTRA UL transmission not overlapping with NR UL transmission in time for PC3 UE
P-Max	20		Apply if run test points with E-UTRA UL transmission overlapping with NR UL transmission in time for PC3 UE, and UE doesn't support dynamic power sharing.

## 6.2B.3.2.4.3-2: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

	Operating on TDD	
	Operating on TDD band	
sa2		
ssp7		
-		sa2

Table 6.2B.3.2.4.3-3: *RRCConnectionReconfiguration:* tdm-PatternConfig if E-UTRA on FDD band and UE does not support dynamic power sharing

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 CHOICE{			Apply if run test points with E-UTRA UL transmission not overlapping with NR UL transmission in time for PC3 UE
setup SEQUENCE {			
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			
NOTE 1: Applies when E-UTRA UL transmission not	overlapping with N	IR UL transmissi	on in time.

6.2B.3.2.4.3.1 Message contents exceptions (network signalled value "NS\_04")

For "NS\_04" see A-MPR test case in table 6.2B.3.1.4.3.1-1 and table 6.2B.3.1.4.3.1-2.

#### 6.2B.3.2.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in Table 6.2B.3.2.5-0 to Table 6.2B.3.2.5-2a. The allowed A-MPR values specified in Table 6.2B.3.2.3-1 are in addition to the allowed MPR requirements specified in clause 6.2B.1.1.3. For the UE maximum output power modified by MPR and/or A-MPR, the power limits specified in Table 6.2B.1.1.3-1 apply.

Table 6.2B.3.2.5-0: Test Tolerance for UE maximum output power (LTE, NR TX separately)

Uplink TX		f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6GHz
LTE	BW ≤ 20MHz	0.7	1.0	1.3
NR	BW ≤ 40MHz	0.7 dB	1.0 dB	1.0
	40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0

Table 6.2B.3.2.5-1: UE Power Class 3 test requirements for network signalled value "NS\_04"

Test ID	Modulation	ΔP <sub>PowerClass</sub> (dB)	MPR (dB)	A- MPR (dB)	A- MPR <sub>EN-</sub> DC (dB)	A- MPR <sub>c</sub> (dB)	ΔTC,c (dB) Note	P <sub>CMAX,c</sub> (dBm)	T(P <sub>CMAX_L,f,c</sub> ) (dB)	T <sub>L,c</sub> (dB)	Upper limit	Lower limit
1, 8, 15, 22, 25, 28, 35, 42 and 45	E-UTRA Note 1	0	2	0	6	6	0 (1.5)	17 (15.5)	5 (5)	2 (3.5)	25+TT	12-TT (10.5- TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	E-UTRA Note 2	0	2	0	11	11	0 (1.5)	12 (10.5)	6 (6)	2 (3.5)	25+TT	6-TT (4.5- TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	NR, Note 1	0	ı	Note 5	6	6	0 (1.5)	17 (15.5)	5 (5)	2 (3.5)	25+TT	12-TT (10.5- TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	NR, Note 2	0	ı	Note 5	11	11	0 (1.5)	12 (10.5)	6 (6)	2 (3.5)	25+TT	6-TT (4.5- TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 1, 3	0	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	25+TT	3-TT (0.5- TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 1, 4	0	1	Note 6	9	9	0 (1.5)	14 (12.5)	5 (6)	2 (3.5)	25+TT	9-TT (6.5- TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 2	0	1	Note 6	14	14	0 (1.5)	9 (7.5)	6	2 (3.5)	25+TT	3-TT (0.5- TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 1, 3	0	1	Note 5	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	25+TT	3-TT (0.5- TT)

2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 1, 4	0	-	Note 5	9	9	0 (1.5)	14 (12.5)	5 (6)	2 (3.5)	25+TT	9-TT (6.5- TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 2	0	-	Note 5	11	11	0 (1.5)	9 (7.5)	6 (6)	2 (3.5)	25+TT	3-TT (0.5- TT)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41	E-UTRA Note 1	0	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	25+TT	3-TT (0.5- TT)
3, 7, 10, 14, 17, 21, 30, 34, 37 and 41	E-UTRA Note 2	0	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	25+TT	3-TT (0.5- TT)
4	NR	0	0.5	Note 9	0	0	0 (1.5)	22.5 (21)	2 (2)	2 (3.5)	25+TT	20.5-TT (19-TT)
6	NR	0	0	Note 9	3.5	3.5	0 (1.5)	19.5 (18)	3.5 (4)	(3.5)	25+TT	16-TT (14-TT)
11	NR	0	1	Note 9	0	0	0 (1.5)	22 (20.5)	2 (2.5)	(3.5)	25+TT	20-TT (18-TT)
13	NR	0	0	Note 9	4	4	0 (1.5)	19 (17.5)	3.5 (5)	2 (3.5)	25+TT	15.5-TT (12.5- TT)
18	NR	0	2	Note 9	0	0	0 (1.5)	21 (19.5)	2 (3.5)	2 (3.5)	25+TT	19-TT (16-TT)
20	NR	0	0	Note 9	4	4	0 (1.5)	19 (17.5)	3.5 (5)	2 (3.5)	25+TT	15.5-TT (12.5- TT)
31	NR	0	3	Note 9	0	0	0 (1.5)	20 (18.5)	2.5 (4)	2 (3.5)	25+TT	17.5-TT (14.5- TT)
33	NR	0	0	Note 9	5.5	5.5	0 (1.5)	17.5 (16)	5 (5)	2 (3.5)	25+TT	12-TT (11-TT)
38	NR	0	3	Note 9	0	0	0 (1.5)	20 (18.5)	2.5 (4)	2 (3.5)	25+TT	17.5-TT (14.5- TT)
40	NR	0	0	Note 9	5.5	5.5	0 (1.5)	17.5 (16)	5 (5)	(3.5)	25+TT	12-TT (11-TT)

NOTE 1: When F<sub>IM3,low\_block,low</sub> ≥ 2490.5 MHz (Case A)

NOTE 2: When F<sub>IM3,low\_block,low</sub> < 2490.5 MHz (Case B)

NOTE 3: When NR SCS = 15kHz.

NOTE 4: When NR SCS = 30 kHz or 60 kHz.

NOTE 5: NR A-MPR values for NS\_04 are defined in Table 6.2.3.3.2-1.

NOTE 6: E-UTRA A-MPR= 3 dB for 1 RB and fc < 2517.5 MHz, otherwise 0 dB.

NOTE 7:  $\Delta T_{C,c} = 1.5 \text{ dB}$  for transmission bandwidths confined within  $F_{UL\_low}$  and  $F_{UL\_low} + 4 \text{ MHz}$  or  $F_{UL\_high} - 4 \text{ MHz}$ and F<sub>UL\_high</sub>, otherwise 0 dB.

NOTE 8: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.2.5-0.

NOTE 9: Apply for UE supporting dynamic power sharing. NR A-MPR values for NS\_04 are defined in TS 38.101-1 [2].

Table 6.2B.3.2.5-2: UE Power Class 2 test requirements for network signalled value "NS\_04" (Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC2 or Not present by *powerClassNRPart-r16*))

Test ID	Modulation	ΔP <sub>PowerClass</sub> (dB)	MPR (dB)	A- MPR (dB)	A-MPR <sub>EN-</sub> DC (dB)	A-MPR <sub>c</sub> (dB)	ΔTC,c (dB) Note 7	P <sub>CMAX,c</sub> (dBm)	T(P <sub>CMAX_L,f,c</sub> ) (dB)	T <sub>L,c</sub> (dB)	Upper limit	Lower limit
1, 8, 15, 22, 25, 28, 35, 42 and 45	E-UTRA Note 1	3	2	0	6	6	0 (1.5)	17 (15.5)	5 (5)	2 (3.5)	28+TT	12-TT (10.5- TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	E-UTRA Note 2	3	2	0	11	11	0 (1.5)	12 (10.5)	6 (6)	2 (3.5)	28+TT	6-TT (4.5-TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	NR, Note 1	3	-	Note 5	6	6	0 (1.5)	17 (15.5)	5 (5)	2 (3.5)	28+TT	12-TT (10.5- TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	NR, Note 2	3	-	Note 5	11	11	0 (1.5)	12 (10.5)	6 (6)	2 (3.5)	28+TT	6-TT (4.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 1, 3	3	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	28+TT	3-TT (0.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 1, 4	3	1	Note 6	9	9	0 (1.5)	14 (12.5)	5 (6)	2 (3.5)	28+TT	9-TT (6.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 2	3	1	Note 6	14	14	0 (1.5)	9 (7.5)	6	2 (3.5)	28+TT	3-TT (0.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 1, 3	3	ı	Note 5	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	28+TT	3-TT (0.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 1, 4	3	-	Note 5	9	9	0 (1.5)	14 (12.5)	5 (6)	2 (3.5)	28+TT	9-TT (6.5-TT)

2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 2	3	-	Note 5	11	11	0 (1.5)	9 (7.5)	6 (6)	2 (3.5)	28+TT	3-TT (0.5-TT)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41	E-UTRA Note 1	0	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	28+TT	3-TT (0.5-TT)
3, 7, 10, 14, 17, 21, 30, 34, 37 and 41	E-UTRA Note 2	0	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	28+TT	3-TT (0.5-TT)
4	NR	0	3.5	Note 9	0	0	0 (1.5)	22.5 (21)	2 (2)	2 (3.5)	28+TT	20.5-TT (19-TT)
6	NR	0	0	Note 9	5.5	5.5	0 (1.5)	20.5 (19)	2.5 (3.5)	2 (3.5)	28+TT	18-TT (15.5- TT)
11	NR	0	3.5	Note 9	0	0	0 (1.5)	22.5 (21)	2 (2)	2 (3.5)	28+TT	20.5-TT (19-TT)
13	NR	0	0	Note 9	6	6	0 (1.5)	20 (18.5)	2.5 (4)	2 (3.5)	28+TT	17.5-TT (14.5- TT)
18	NR	0	3.5	Note 9	0	0	0 (1.5)	22.5 (21)	2 (2)	2 (3.5)	28+TT	20.5-TT (19-TT)
20	NR	0	0	Note 9	6	6	0 (1.5)	20 (18.5)	2.5 (4)	2 (3.5)	28+TT	17.5-TT (14.5- TT)
31	NR	0	3.5	Note 9	0	0	0 (1.5)	22.5 (21)	2 (2)	2 (3.5)	28+TT	20.5-TT (19-TT)
33	NR	0	0	Note 9	7.5	7.5	0 (1.5)	18.5 (17)	4 (5)	(3.5)	28+TT	14.5-TT (12-TT)
38	NR	0	3.5	Note 9	0	0	0 (1.5)	22.5 (21)	2 (2)	(3.5)	28+TT	20.5-TT (19-TT)
40	NR	0	0	Note 9	7.5	7.5	0 (1.5)	18.5 (17)	4 (5)	(3.5)	28+TT	14.5-TT (12-TT)

- NOTE 1: When F<sub>IM3,low\_block,low</sub> ≥ 2490.5 MHz (Case A).
- NOTE 2: When F<sub>IM3,low\_block,low</sub> < 2490.5 MHz (Case B).
- NOTE 3: When NR SCS = 15kHz.
- NOTE 4: When NR SCS = 30 kHz or 60 kHz.
- NOTE 5: NR A-MPR values for NS\_04 are defined in Table 6.2.3.3.2-1.
- NOTE 6: E-UTRA A-MPR= 3 dB for 1 RB and fc < 2517.5 MHz, otherwise 0 dB.
- NOTE 7:  $\Delta T_{C,c} = 1.5$  dB for transmission bandwidths confined within  $F_{UL\_low}$  and  $F_{UL\_low} + 4$  MHz or  $F_{UL\_high} 4$  MHz and  $F_{UL\_high}$ , otherwise 0 dB.
- NOTE 8: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.2.5-0.
- NOTE 9: Apply for UE supporting dynamic power sharing. NR A-MPR values for NS\_04 are defined in TS 38.101-1 [24].

Table 6.2B.3.2.5-2a: UE Power Class 2 test requirements for network signalled value "NS\_04" (Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC3 by *powerClassNRPart-r16*))

Test ID	Modulation	ΔP <sub>PowerClass</sub> (dB)	MPR (dB)	A- MPR (dB)	A-MPR <sub>EN-</sub> DC (dB)	A-MPR <sub>c</sub> (dB)	ΔTC,c (dB) Note 7	P <sub>CMAX,c</sub> (dBm)	T(P <sub>CMAX_L,f,c</sub> ) (dB)	T <sub>L,c</sub> (dB)	Upper limit	Lower limit
1, 8, 15, 22, 25, 28, 35, 42 and 45	E-UTRA Note 1	3	2	0	6	6	0 (1.5)	17 (15.5)	5 (5)	2 (3.5)	28+TT	12-TT (10.5- TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	E-UTRA Note 2	3	2	0	11	11	0 (1.5)	12 (10.5)	6 (6)	2 (3.5)	28+TT	6-TT (4.5-TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	NR, Note 1	3	-	Note 5	6	6	0 (1.5)	17 (15.5)	5 (5)	2 (3.5)	28+TT	12-TT (10.5- TT)
1, 8, 15, 22, 25, 28, 35, 42 and 45	NR, Note 2	3	-	Note 5	11	11	0 (1.5)	12 (10.5)	6 (6)	2 (3.5)	28+TT	6-TT (4.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 1, 3	3	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	28+TT	3-TT (0.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 1, 4	3	1	Note 6	9	9	0 (1.5)	14 (12.5)	5 (6)	2 (3.5)	28+TT	9-TT (6.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	E-UTRA Note 2	3	1	Note 6	14	14	0 (1.5)	9 (7.5)	6	2 (3.5)	28+TT	3-TT (0.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 1, 3	3	ı	Note 5	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	28+TT	3-TT (0.5-TT)
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 1, 4	3	-	Note 5	9	9	0 (1.5)	14 (12.5)	5 (6)	2 (3.5)	28+TT	9-TT (6.5-TT)

0.5.0		ı				1	1				1	
2, 5, 9, 16, 19, 23, 24, 26, 27, 29, 32, 36, 39, 43, 44, 46, and 47	NR Note 2	3	-	Note 5	11	11	0 (1.5)	9 (7.5)	6 (6)	2 (3.5)	28+TT	3-TT (0.5-TT)
3, 7, 10, 14, 17, 21, 30, 34, 37, 41	E-UTRA Note 1	3	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	28+TT	3-TT (0.5-TT)
3, 7, 10, 14, 17, 21, 30, 34, 37 and 41	E-UTRA Note 2	3	1	Note 6	14	14	0 (1.5)	9 (7.5)	6 (7)	2 (3.5)	28+TT	3-TT (0.5-TT)
4	NR	0	0.5	Note 9	0	0	0 (1.5)	22.5 (21)	2 (2)	(3.5)	25+TT	20.5-TT (19-TT)
6	NR	0	0	Note 9	3.5	3.5	0 (1.5)	19.5 (18)	3.5 (4)	(3.5)	25+TT	16-TT (14-TT)
11	NR	0	1	Note 9	0	0	0 (1.5)	22 (20.5)	2 (2.5)	(3.5)	25+TT	20-TT (18-TT)
13	NR	0	0	Note 9	4	4	0 (1.5)	19 (17.5)	3.5 (5)	2 (3.5)	25+TT	15.5-TT (12.5- TT)
18	NR	0	2	Note 9	0	0	0 (1.5)	21 (19.5)	2 (3.5)	2 (3.5)	25+TT	19-TT (16-TT)
20	NR	0	0	Note 9	4	4	0 (1.5)	19 (17.5)	3.5 (5)	2 (3.5)	25+TT	15.5-TT (12.5- TT)
31	NR	0	3	Note 9	0	0	0 (1.5)	20 (18.5)	2.5 (4)	2 (3.5)	25+TT	17.5-TT (14.5- TT)
33	NR	0	0	Note 9	5.5	5.5	0 (1.5)	17.5 (16)	5 (5)	2 (3.5)	25+TT	12-TT (11-TT)
38	NR	0	3	Note 9	0	0	0 (1.5)	20 (18.5)	2.5 (4)	2 (3.5)	25+TT	17.5-TT (14.5- TT)
40	NR	0	0	Note 9	5.5	5.5	0 (1.5)	17.5 (16)	5 (5)	2 (3.5)	25+TT	12-TT (11-TT)

- NOTE 1: When F<sub>IM3,low\_block,low</sub> ≥ 2490.5 MHz (Case A). NOTE 2: When F<sub>IM3,low\_block,low</sub> < 2490.5 MHz (Case B).
- NOTE 3: When NR SCS = 15kHz.
- NOTE 4: When NR SCS = 30 kHz or 60 kHz.
- NOTE 5: NR A-MPR values for NS\_04 are defined in Table 6.2.3.3.2-1.
- NOTE 6: E-UTRA A-MPR= 3 dB for 1 RB and fc < 2517.5 MHz, otherwise 0 dB.
- NOTE 7:  $\Delta T_{C,C} = 1.5$  dB for transmission bandwidths confined within Fullow and Fullow + 4 MHz or Fulhigh, -4 MHz and Fulhigh, otherwise 0 dB.
- NOTE 8: TT for each frequency and channel bandwidth is specified in Table 6.2B.3.2.5-0.
- NOTE 9: Apply for UE supporting dynamic power sharing. NR A-MPR values for NS\_04 are defined in TS 38.101-1 [2].

#### 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN-DC within FR1 (1 NR CC)

#### 6.2B.3.3.1 Test purpose

Same test purpose as in clause 6.2.3.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.2B.3.3.2 Test applicability

The requirements of this test apply to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

NOTE: Test execution is not necessary if clause 6.5B.2.3.2, 6.5B.2.3.2 and 6.5B.4.3 are executed since A-MPR requirements are verified in these test cases.

### 6.2B.3.3.3 Minimum conformance requirements

For inter-band EN-DC between E-UTRA and NR FR1, UE additional maximum output power reduction specified in TS 36.101 [5] and TS 38.101-1 [2] apply for E-UTRA and NR respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.3.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied

#### 6.2B.3.3.4 Test description

Same test description as in clause 6.2.3.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.2.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 6.2B.3.3.4-1.
- 3.1. Downlink E-UTRA signals are initially set up according to TS 36.521-1 [10] Annex C0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0.
- 4.1. The E-UTRA UL Reference Measurement channels are set according to Table 6.2B.3.3.4-1.

Step 6 of Initial conditions as in clause 6.2.3.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.Same test procedure as in clause 6.2.3.4.2 in TS 38.521-1 [8].

#### 6.2B.3.3.5 Test requirement

For PC3 UE, same test requirement as in clause 6.2.2.5 in TS 38.521-1 [8].

For PC2 UE (Rel-15 UE indicates PC2 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC2 or Not present by *powerClassNRPart-r16*)), same test requirement for PC2 UE as in clause 6.2.3.5 in TS 38.521-1 [8]. For PC2 UE (Rel-15 and forward UE indicates PC3 on NR band, Rel-16 and forward UE reporting (PC2 by P<sub>PowerClass,NR</sub>, and PC3 by *powerClassNRPart-r16*)), same test requirement for PC3 UE as in clause 6.2.3.5 in TS 38.521-1 [8].

# 6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN-DC including FR2 (1 NR CC)

## 6.2B.3.4.1 Test purpose

Same test purpose as in clause 6.2.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.2B.3.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.2B.3.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

### 6.2B.3.4.4 Test description

#### 6.2B.3.4.4.1 Initial conditions

Same test description as in clause 6.2.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.2.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

#### 6.2B.3.4.4.2 Test procedure

Same test procedure as in clause 6.2.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.3.4.4.3 Message contents

Message contents are according to TS 38.508-1 [5] clause 4.6 with the following exceptions for each network signalled value.

1. Information element AdditionalSpectrumEmission for NR can be set in *nr-SecondaryCellGroupConfig* according to TS 38.331 [15]. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2B.3.4.4.3-1: Additional Spectrum Emission: Additional spurious emissions test requirement

Derivation Path: TS 38.508-1 [5] clause 4.6.3, Table 4.6.3-1				
Information Element	Value/remark	Comment	Condition	
AdditionalSpectrumEmission	1 (NS_202)	for band n257		
AdditionalSpectrumEmission	2 (NS_202)	for band n258		
AdditionalSpectrumEmission	3 (NS_203)	for band n258		

#### 6.2B.3.4.5 Test requirement

Same test requirement as in clause 6.2.3.5 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.3.4D UE Additional Maximum Output Power reduction for Inter-Band EN-DC including FR2 (1 NR CC) for UL MIMO

### 6.2B.3.4D.1 Test purpose

Same test purpose as in clause 6.2D.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.2B.3.4D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC with UL MIMO.

## 6.2B.3.4D.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.2D.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

## 6.2B.3.4D.4 Test description

#### 6.2B.3.4D.4.1 Initial conditions

Same test description as in clause 6.2D.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.2D.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2D.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

#### 6.2B.3.4D.4.2 Test procedure

Same test procedure as in clause 6.2D.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.2B.3.4D.4.3Message contents

Message contents are according to TS 38.508-1 [5] clause 4.6 ensuring Table 4.6.3-182 with condition 2TX\_UL\_MIMO, with the following exceptions for each network signalled value.

1. Information element AdditionalSpectrumEmission for NR can be set in *nr-SecondaryCellGroupConfig* according to TS 38.331 [15]. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2B.3.4D.4.3-1: Additional Spectrum Emission: Additional spurious emissions test requirement

Derivation Path: TS 38.508-1 [5] clause 4.6.3, Table 4.6.3-1				
Information Element	Value/remark	Comment	Condition	
AdditionalSpectrumEmission	1 (NS_202)	for band n257		
AdditionalSpectrumEmission	2 (NS_202)	for band n258		
AdditionalSpectrumEmission	3 (NS 203)	for band n258		

### 6.2B.3.4D.5 Test requirement

Same test requirement as in clause 6.2D.3.5 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.3.5 UE Additional Maximum Output power reduction for inter-band EN-DC including both FR1 and FR2

#### 6.2B.3.5.1 Test purpose

Same test purpose as in clause 6.2.3.1 in TS 38.521-1 [8] for NR FR1 carrier and clause 6.2.3.1 in TS 38.521-2 [9] for NR FR2 carrier.

## 6.2B.3.5.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for Additional Maximum Output Power apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 6.2B.3.

## 6.2B.3.5D UE Additional Maximum Output power reduction for inter-band EN-DC including both FR1 and FR2 for UL MIMO

## 6.2B.3.5D.1 Test purpose

Same test purpose as in clause 6.2D.3.1 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.2D.3.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.2B.3.5D.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for maximum output power apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 6.2B.

## 6.2B.4 Configured Output Power for EN-DC

### 6.2B.4.1 Configured Output Power Level for EN-DC

## 6.2B.4.1.0 Minimum Conformance Requirements

### 6.2B.4.1.0.1 Configured output power level

### 6.2B.4.1.0.1.1 Intra-band contiguous EN-DC

The following requirements apply for one component carrier per CG configured for synchronous DC.

For intra-band dual connectivity with one uplink serving cell per CG on E-UTRA and NR respectively, the UE is allowed to set its configured maximum output power  $P_{CMAX,c(i),i}$  for serving cell c(i) of CG i, i=1,2, and its total configured maximum transmission power for EN-DC operation  $\hat{P}_{Total}^{EN-DC} = 10\log 10(\hat{P}_{total}^{EN-DC})$  with  $\hat{P}_{total}^{EN-DC}$  as specified in clause 7.6 of TS 38.213 [19].

The configured maximum output power  $P_{CMAX\_E-UTRA,c}(p)$  in sub-frame p for the configured E-UTRA uplink carrier shall be set within the bounds:

$$P_{\text{CMAX\_L\_E-UTRA},c}\left(p\right) \leq P_{\text{CMAX\_E-UTRA},c}\left(p\right) \leq P_{\text{CMAX H\_E-UTRA},c}\left(p\right)$$

where  $P_{CMAX\_L\_E-UTRA,c}$  and  $P_{CMAX\ H\_E-UTRA,c}$  are the limits for a serving cell c as specified in TS 36.101 [5] clause 6.2.5 modified by  $P_{LTE}$  as follows:

$$\begin{split} P_{CMAX\_L\_E\text{-}UTRA,c} &= MIN \; \{MIN(P_{EMAX,c} \,,\, P_{EMAX,\,EN\text{-}DC},\, P_{LTE}) - \Delta t_{C\_E\text{-}UTRA}, c, \; (P_{PowerClass,EN\text{-}DC} - \Delta P_{PowerClass,EN\text{-}DC}), \\ (P_{PowerClass} - \Delta P_{PowerClass}) - MAX(MPR_c + A\text{-}MPR_c + \Delta T_{IB,c} \, + \Delta T_{C\_E\text{-}UTRA}, c + \Delta T_{ProSe}, P\text{-}MPR_c) \} \end{split}$$

 $P_{CMAX\;H\_E-UTRA,c} = MIN\;\{P_{EMAX,c},\,P_{EMAX,\;EN-DC}\;,\,P_{LTE},\,P_{PowerClass},\,EN-DC},\,P_{PowerClass} - \Delta P_{PowerClass}\}$ 

#### where

- P<sub>EMAX,EN-DC</sub> is the value given by the field *p-maxUE-FR1* of the *RRCConnectionReconfiguration-v1530* IE as defined in TS 36.331 [17];
- P<sub>LTE</sub> is the value given by the field *p-maxEUTRA-r15* of the *RRCConnectionReconfiguration-v1510* IE as defined in TS 36.331 [17] which is the same as P<sub>LTE</sub> in TS 38.213 [19];
- $\Delta t_{C\_EUTRA, c} = 1.5 \text{ dB}$  when NOTE 2 in Table 6.2.2-1 of TS 36.101 [5] applies;  $\Delta t_{C\_EUTRA, c} = 0 \text{ dB}$  otherwise;

and whenever NS\_01 is not indicated within CG 1:

- for a UE indicating support of dynamicPowerSharing, the MPR<sub>c</sub> and the A-MPR<sub>c</sub> are determined in accordance with the DCI of serving cell *c* of the CG 1 and the specification in clause 6.2.4 of TS 36.101 [5];
- for a UE not indicating support of dynamicPowerSharing, the A-MPR<sub>c</sub> is determined in accordance with clause 6.2B.3.1 with parameters applicable for UEs not indicating support of dynamicPowerSharing and MPR<sub>c</sub> = 0 dB;

and whenever NS 01 is indicated in CG 1:

- for a UE indicating support of dynamicPowerSharing, the MPR<sub>c</sub> is determined in accordance with the DCI of serving cell *c* of the CG 1 and the specification in clause 6.2.4 of TS 36.101 [5];
- for a UE not indicating support of dynamicPowerSharing, the MPR<sub>c</sub> is determined in accordance with clause 6.2B.2.1 with parameters applicable for UEs not indicating support of dynamicPowerSharing and A-MPR<sub>c</sub> = 0 dB:

The configured maximum output power  $P_{CMAX\_NR,c}(q)$  in physical channel q for the configured NR carrier shall be set within the bounds:

$$P_{\text{CMAX\_L,f,c,,NR}}\left(q\right) \leq P_{\text{CMAX,f,c,NR}}\left(q\right) \leq P_{\text{CMAX\_H,f,c,NR}}\left(q\right)$$

where  $P_{CMAX\_L\_NR,c}$  and  $P_{CMAX\_H\_NR,c}$  are the limits for a serving cell c as specified in clause 6.2.4 of TS 38.101-1 [2] modified as follows:

$$\begin{split} &P_{CMAX\_L,f,c,,NR} = MIN \; \{MIN(P_{EMAX,c}\;,\,P_{EMAX,\;EN\text{-}DC},\,P_{NR}) - \Delta T_{C\_NR,\;c},\,(P_{PowerClass,\;EN\text{-}DC} - \Delta P_{PowerClass,EN\text{-}DC}\;),\,(P_{PowerClass} - \Delta P_{PowerClass}) - MAX(MAX(MPR_c,\,A\text{-}MPR_c) + \Delta T_{IB,c} + \Delta T_{C\_NR,\;c} + \Delta T_{RxSRS},\;P\text{-}MPR_c)\;\} \end{split}$$

 $P_{CMAX\_H,f,c,NR} = MIN \; \{P_{EMAX,c}, \, P_{EMAX,\,EN-DC}, \, P_{NR} \;, \, P_{PowerClass,\,EN-DC}, \, P_{PowerClass} - \Delta P_{PowerClass} \; \}$ 

## where

- P<sub>EMAX,EN-DC</sub> is the value given by the field *p-maxUE-FR1* of the *RRCConnectionReconfiguration-v1530* IE as defined in TS 36.331 [17];
- P<sub>LTE</sub> signalled by RRC as *p-MaxEUTRA-r15* in TS 36.331 [17]
- P<sub>NR</sub> is the value given by the field *p-NR-FR1* of the *PhysicalCellGroupConfig* IE as defined in [18] and signalled by RRC;
- $\Delta T_{c\_E-UTRA, c} = 1.5 dB$  when NOTE 2 in Table 6.2.2-1 in TS 36.101 [4] applies for a serving cell c, otherwise  $\Delta T_{c\_E-UTRA, c} = 0 dB$ ;
- $\Delta T_{C_{NR,c}} = 1.5$ dB when NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] applies for a serving cell c, otherwise  $\Delta T_{C_{NR,c}} = 0$ dB;

-  $\Delta T_{IB,c}$  specified in clause 6.2B.4.2.1 for EN-DC, the individual Power Class defined in table 6.2B.1.1 and any other additional power reductions parameters specified in clauses 6.2B.2 and 6.2B.3 for EN-DC are applicable to  $P_{CMAX\_E-UTRA,c}$  and  $P_{CMAX\_f,c,NR}$  evaluations.

P<sub>PowerClass, EN-DC</sub> is defined in clause 6.2B.1.1 for intra-band contiguous EN-DC;

- P<sub>PowerClass,NR</sub> is the nominal UE power of the power class that the UE supports for the NR band of the EN-DC combination as defined in clause 6.2.1 of 38.101-1 [2]; in case IE [powerClassNRPart] as defined in TS 38.331 [18] is indicated, P<sub>PowerClass,NR</sub> should use that value instead.
- P<sub>PowerClass,E-UTRA</sub> is the nominal UE power of the power class that the UE supports for the E-UTRA band of the EN-DC combination as defined in clause 6.2.2 of 36.101 [5];-

 $\Delta P_{PowerClass,EN-DC}$  is 3 dB for a power class 2 capable EN-DC UE when LTE UL/DL configuration is 0 or 6; or LTE UL/DL configuration is 1 and special subframe configuration is 0 or 5;  $\Delta P_{PowerClass,EN-DC} = 3$  dB when the IE p-maxUE-FR1 as defined in TS 36.331 [17] is provided and set to the maximum output power of the default power class or lower;  $\Delta P_{PowerClass,EN-DC}$  is 6 dB for a power class 1.5 capable EN-DC UE when the LTE UL duty cycle is greater than max(50%, maxUplinkDutyCycle);  $\Delta P_{PowerClass,EN-DC}$  is 3 dB for a power class 1.5 capable EN-DC UE when the LTE UL duty cycle is between max(50%, maxUplinkDutyCycle) and max(25%, maxUplinkDutyCycle/2); otherwise  $\Delta P_{PowerClass,EN-DC} = 0$  dB;

and whenever NS\_01 is not indicated within CG 2:

- for a UE indicating support of dynamicPowerSharing, A-MPR<sub>c</sub> = A-MPR'<sub>c</sub> with A-MPR'<sub>c</sub> determined in accordance with clause 6.2B.3.1 and MPR<sub>c</sub> = 0 dB if transmission(s) in subframe p on CG 1 overlap in time with physical channel q on CG 2;
- for a UE indicating support of dynamicPowerSharing, A-MPR<sub>c</sub> is determined in accordance with TS 38.101-1 [2] if transmission(s) in subframe p on CG 1 does not overlap in time with physical channel q on CG 2;
- for a UE not indicating support of dynamicPowerSharing, the A-MPR<sub>c</sub> is determined in accordance with clause 6.2B.3.1 with parameters applicable for UEs not indicating support of dynamicPowerSharing and MPR<sub>c</sub> = 0 dB;

and whenever NS\_01 is indicated in CG 2.

- for a UE indicating support of dynamicPowerSharing, MPRc = MPR'c with MPR'c determined in accordance with clause 6.2B.2.1 and A-MPRc = 0 dB if transmission(s) in subframe p on CG 1 overlap in time with physical channel q on CG 2;
- for a UE indicating support of dynamicPowerSharing, MPRc is determined in accordance with TS 38.101-1 [2] if transmission(s) in subframe p on CG 1 does not overlap in time with physical channel q on CG 2;
- for a UE not indicating support of dynamicPowerSharing, the MPRc is determined in accordance with clause 6.2B.2.1 with parameters applicable for UEs not indicating support of dynamicPowerSharing and A-MPRc = 0 dB.

If the transmissions from NR and E-UTRA do not overlap, then the complete clauses for configured transmitted power for E-UTRA and NR respectively from their own specifications apply with the modifications specified above. The lower value between  $P_{PowerClass,\ EN-DC}$  or  $P_{EMAX,\ EN-DC}$  shall not be exceeded at any time by UE.

If the EN-DC UE is not supporting dynamic power sharing, then the complete clauses for configured transmitted power for E-UTRA and NR respectively from their own specifications TS 36.101 [5] and TS 38.101-1 [2] respectively apply with the modifications specified above.

If the UE does not support dynamic power sharing,

$$P_{Total}^{EN-DC} = MIN \{ P_{EMAX, EN-DC}, P_{PowerClass, EN-DC} - \Delta P_{PowerClass, EN-DC} \} + 0.3 dB$$

For UEs indicating support of dynamicPowerSharing in the UE-MRDC-Capability IE the UE can configure the total maximum transmission power  $P_{Total}^{EN-DC}$  within the range

$$P_{\text{EN-DC,tot\_L}} \leq P_{Total}^{EN-DC} \leq P_{\text{EN-DC,tot\_H}}$$

where

$$P_{\text{EN-DC,tot\_L}}(p,q) = MIN\{\ P_{\text{PowerClass,EN-DC}} - \Delta P_{\text{PowerClass,EN-DC}} - MAX\{MPR_{\text{tot}},\ A\text{-MPR}_{\text{tot}}\},\ P_{\text{EMAX,EN-DC}}\}$$

### $P_{EN-DC,tot\_H}(p,q) = MIN\{P_{PowerClass,EN-DC}, P_{EMAX,EN-DC}\}$

for sub-frame p on CG 1 overlapping with physical channel q on CG 2 and with MPR<sub>tot</sub> and A-MPR<sub>tot</sub> in accordance with 6.2B.2.1 and clause 6.2B.3.1, respectively.

The measured total maximum output power  $P_{UMAX}$  over both CGs/RATs, measured over the transmission reference time duration is

$$P_{UMAX} = 10 \log_{10} \left[ p_{UMAX,c,E-UTRA} + p_{UMAX,f,c,NR} \right],$$

where  $p_{UMAX,c,E-UTRA}$  and  $p_{UMAX,c,NR}$  denotes the measured output power of serving cell c for E-UTRA and NR respectively, expressed in linear scale.

For UEs indicating support of dynamicPowerSharing, the measured total configured maximum output power  $P_{UMAX}$  shall be within the following bounds:

$$P_{CMAX\_L} - T_{LOW} \left( P_{CMAX\_L} \right) \, \leq \, P_{UMAX} \, \leq \, P_{CMAX\_H} + T_{HIGH} \left( P_{CMAX\_H} \right)$$

with the tolerances  $T_{LOW}(P_{CMAX\_L})$  and  $T_{HIGH}(P_{CMAX\_H})$  for applicable values of  $P_{CMAX\_L}$  and  $P_{CMAX\_L}$  specified in Table 6.2B.4.1.0.1.1-2.

When an UL subframe transmission p from E-UTRA overlap with a physical channel q from the NR, then for  $P_{\text{UMAX}}$  evaluation, the E-UTRA subframe p is taken as reference period  $T_{\text{REF}}$  and always considered as the reference measurement duration and the following rules are applicable.

 $T_{REF}$  and  $T_{eval}$  are specified in Table 6.2B.4.1.0.1.1-1 when same or different subframes and physical channel durations are used in aggregated carriers.  $P_{PowerClass, EN-DC}$  shall not be exceeded by the UE during any evaluation period of time.

Table 6.2B.4.1.0.1.1-1: P<sub>CMAX</sub> evaluation window

transmission duration	T <sub>REF</sub>	T <sub>eval</sub>	
Different transmission duration in different RAT carriers	E-UTRA Subframe	Min( <i>T<sub>no_hopping</sub></i> , Physical Channel Length)	

For each  $T_{REF}$ , the  $P_{CMAX\_H}$  is evaluated per  $T_{eval}$  and given by the maximum value over the transmission(s) within the  $T_{eval}$  as follows:

$$P_{\text{CMAX\_H}} = \text{MAX} \left\{ P_{\text{CMAX\_EN-DC\_H}} \left( p, q \right), P_{\text{CMAX\_EN-DC\_H}} \left( p, q+1 \right), \dots, P_{\text{CMAX\_EN-DC\_H}} \left( p, q+n \right) \right\}$$

where  $P_{CMAX\_EN-DC\_H}$  are the applicable upper limits for each overlapping scheduling unit pairs (p,q), (p,q+1), up to (p,q+n) for each applicable  $T_{eval}$  duration, where q+n is the last NR UL physical channel overlapping with LTE subframe p.

While P<sub>CMAX\_L</sub> is computed as follows:

$$P_{\text{CMAX\_L}} = \text{MIN} \left\{ P_{\text{CMAX\_EN-DC\_L}}(p,q), P_{\text{CMAX\_EN-DC\_L}}(p,q+1), \dots, P_{\text{CMAX\_EN-DC\_L}}(p,q+n) \right\}$$

where  $P_{\text{CMAX\_EN-DC\_L}}$  are the applicable lower limits for each overlapping scheduling unit pairs (p,q), (p,q+1), up to (p,q+n) for each applicable  $T_{\text{eval}}$  duration, where q+n is the last NR UL physical channel overlapping with E-UTRA subframe p,

With

$$P_{\text{CMAX\_EN-DC\_H}}(p,q) = \text{MIN} \left\{ 10 \log_{10} \left[ p_{\text{CMAX H\_E-UTRA},c}(p) + p_{\text{CMAX H,f,c,NR }c}(q) \right], P_{\text{EMAX, EN-DC}}, P_{\text{PowerClass, EN-DC}} \right\}$$

And:

a= 
$$10 \log_{10} \left[ p_{\text{CMAX\_E-UTRA},c}(p) + p_{\text{CMAX,f,c,NR}}(q) \right] > P_{\text{EN-DC,tot\_L}}$$

b= 
$$10 \log_{10} \left[ p_{\text{CMAX\_E-UTRA},c}(p) + p_{\text{CMAX,f,c,NR}}(q) / X_\text{scale} \right] > P_{\text{EN-DC,tot\_L}}$$

If a= FALSE and the configured transmission power spectral density between the MCG and SCG differs by less than 6 dB

$$P_{\text{CMAX\_EN-DC\_L}}(p,q) = \text{MIN } \{10 \log_{10} \left[ p_{\text{CMAX L\_E-UTRA},c}\left(p\right) + p_{\text{CMAX L\_f},c,,NR \ c}(q) \right], P_{\text{EMAX, EN-DC}}, P_{\text{PowerClass, EN-DC}} - \Delta P_{\text{PowerClass, EN-DC}} \}$$

ELSE If (a=TRUE) AND (b=FALSE) and the configured transmission power spectral density between the MCG and SCG differs by less than 6 dB

 $P_{\text{CMAX\_EN-DC\_L}}(p,q) = \text{MIN } \{10 \; log_{10} \; [p_{\text{CMAX L\_E-UTRA},c} \left(p\right) + p_{\text{CMAX L\_f},c,,NR} \; _{c}(q) \; / \text{X\_scale} \; ], \; P_{\text{EMAX, EN-DC}} \; _{c}, P_{\text{PowerClass, EN-DC}} \; _{c}$ 

ELSE If b= TRUE or the transmission power after power scaling spectral density between the MCG and SCG differs by more than  $6~\mathrm{dB}$ 

 $P_{\text{CMAX\_EN-DC\_L}}(p,q) = \text{MIN } \{10 \; \text{log}_{10} \; [p_{\text{CMAX L\_E-UTRA},c} \; (p) \; ], \; P_{\text{EMAX, EN-DC}} \; , \\ P_{\text{PowerClass, EN-DC}} \; - \; \Delta P_{\text{PowerClass, EN-DC}} \; \}$  where

- p<sub>CMAX H\_E-UTRA,c</sub> (p) is the E-UTRA higher limit of the maximum configured power expressed in linear scale;
- $p_{CMAX H_NR,c}(q)$  is the NR higher limit of the maximum configured power expressed in linear scale;
- p<sub>CMAX L E-UTRA.c</sub> (p) is the E-UTRA lower limit of the maximum configured power expressed in linear scale;
- p<sub>CMAX L\_NR,c</sub>(q) is the NR lower limit of the maximum configured power expressed in linear scale;
- P<sub>PowerClass, EN-DC</sub> is defined in clause 6.2B.1.1.3-1 for intra-band EN-DC;
- X\_scale is the linear value of X dB which is configured by RRC and can only take values [0, 6] dB
- p<sub>CMAX E-UTRA,c</sub> (p) is the linear value of P<sub>CMAX E-UTRA,c</sub> (p), the real configured max power for E-UTRA
- $p_{CMAX,f,c}$  NR(q) is the linear value of  $P_{CMAX,f,c}$  NR(q), the real configured max power of NR

Table 6.2B.4.1.0.1.1-2: P<sub>CMAX</sub> tolerance for Dual Connectivity E-UTRANR

P <sub>CMAX</sub> (dBm)	Tolerance T <sub>LOW</sub> (P <sub>CMAX_L</sub> ) (dB)	Tolerance T <sub>HIGH</sub> (P <sub>CMAX_</sub> H) (dB)	
$23 \le P_{CMAX} \le 33$	3.0	2.0	
22 ≤ P <sub>CMAX</sub> < 23	5.0	2.0	
21 ≤ P <sub>CMAX</sub> < 22	5.0	3.0	
20 ≤ P <sub>CMAX</sub> < 21	6.0	4.0	
16 ≤ P <sub>CMAX</sub> < 20		5.0	
11 ≤ P <sub>CMAX</sub> < 16	6.0		
-40 ≤ P <sub>CMAX</sub> < 11	7.0		

If the UE supports dynamic power sharing, and when LTE and NR transmissions overlap and the condition (If (a=TRUE) AND (b=FALSE)) is met, SCG shall be transmitted and the following supplementary minimum requirement apply for the measured SCG power,  $P_{UMAX,f,c,NR}(q)$ , under nominal conditions and unless otherwise stated.

 $10\log(p_{\text{CMAX L,f,c,NR}}(q)/X_{\text{scale}}) - T_{\text{LOW}}(10\log(p_{\text{CMAX L,f,c,NR}}(q)/X_{\text{scale}}))\} \le P_{\text{UMAX,f,c,NR}}(q) \le 10\log(p_{\text{CMAX H,f,c,NR}}(q)) + T_{\text{HIGH}}(10\log(p_{\text{CMAX H,f,c,NR}}(q))).$ 

with the tolerances  $T_{LOW}$  and  $T_{HIGH}$  for applicable values of  $P_{CMAX}$  specified in Table 6.2B.4.1.0.1.1-2.

If the UE supports dynamic power sharing, the measured maximum output power in subframe p on CG 1,  $p_{UMAX,c,E-UTRA}$ , shall meet the requirements in clause 6.2.5 in TS 36.101 [5] with the limits  $P_{CMAX\_L,c}$  and  $P_{CMAX\_H\_E-UTRA,c}$  are specified above, respectively.

If the configured transmission power spectral density between the MCG and SCG differs by more than 6 dB, then

 $P_{\text{UMAX},f,c,NR}(q) \leq 10\log(p_{\text{CMAX H, f,c,NR}}(q)) + T_{\text{HIGH}}(10\log(p_{\text{CMAX H, f,c,NR}}(q))).$ 

#### 6.2B.4.1.0.1.2 Intra-band non-contiguous EN-DC

The following requirements apply for one component carrier per CG configured for synchronous DC. The CG(s) are indexed by j = 1 for MCG and j = 2 for SCG.

The configured maximum output power  $P_{\text{CMAX\_E-UTRA},c}(p)$  in sub-frame p for the configured E-UTRA uplink carrier shall be set in accordance with clause 6.2B.4.1.0.1.1 but where

- for a UE not indicating support of dynamicPowerSharing, the A-MPR<sub>c</sub> determined in accordance with clause 6.2B.3.2 with parameters applicable for UEs not indicating support of dynamicPowerSharing and MPR<sub>c</sub> = 0 dB:

whenever NS 01 is not indicated within CG 1 while

- for a UE not indicating support of dynamicPowerSharing, the MPR<sub>c</sub> determined in accordance with clause 6.2B.2.2 with parameters applicable for UEs not indicating support of dynamicPowerSharing and A-MPR<sub>c</sub> = 0 dB;

whenever NS 01 is indicated in CG 1.

The configured maximum output power  $P_{\text{CMAX\_NR},c}(q)$  in physical channel q for the configured NR carrier shall be set in accordance with clause 6.2B.4.1.0.1.1 but where

- for a UE indicating support of dynamicPowerSharing, A-MPR<sub>c</sub> = A-MPR'<sub>c</sub> with A-MPR'<sub>c</sub> determined in accordance with clause 6.2B.3.2 and MPR<sub>c</sub> = 0 dB if transmission(s) in subframe p on CG 1 overlap in time with physical channel q on CG 2;
- for a UE indicating support of dynamicPowerSharing, A-MPR<sub>c</sub> is determined in accordance with [2] if transmission(s) in subframe p on CG 1 does not overlap in time with physical channel q on CG 2;
- for a UE not indicating support of dynamicPowerSharing, the A-MPR<sub>c</sub> is determined in accordance with clause 6.2B.3.2 with parameters applicable for UEs not indicating support of dynamicPowerSharing and MPR<sub>c</sub> = 0 dB;

For UEs indicating support of dynamicPowerSharing in the *UE-MRDC-Capability IE*, the UE can configure the total transmission power in accordance with clause 6.2B.4.1.0.1.1 but with P<sub>powerclass,EN-DC</sub> the EN-DC power class of the intra-band non-contiguous band combination configured and A-MPR determined in accordance with clause 6.2B.3.2.

whenever NS\_01 is not indicated in CG 2 while

- for a UE indicating support of dynamicPowerSharing, MPR<sub>c</sub> = MPR'<sub>c</sub> with MPR'<sub>c</sub> determined in accordance with clause 6.2B.2.2 and A-MPR<sub>c</sub> = 0 dB if transmission(s) in subframe p on CG 1 overlap in time with physical channel q on CG 2;
- for a UE indicating support of dynamicPowerSharing, MPR<sub>c</sub> is determined in accordance with TS 38.101-1 [2] if transmission(s) in subframe *p* on CG 1 does not overlap in time with physical channel *q* on CG 2;
- for a UE not indicating support of dynamicPowerSharing, the MPR<sub>c</sub> is determined in accordance with clause 6.2B.2.2 with parameters applicable for UEs not indicating support of dynamicPowerSharing and A-MPR<sub>c</sub> = 0 dB;

whenever NS\_01 is indicated in CG 2.

For UEs indicating support of dynamicPowerSharing in the *UE-MRDC-Capability IE*, the UE can configure the total transmission power in accordance with clause 6.2B.4.1.1 but with P<sub>powerclass,EN-DC</sub> the EN-DC power class of the intraband non-contiguous band combination configured and A-MPR determined in accordance with clause 6.2B.3.2.

The total maximum output power  $P_{UMAX}$  over both CGs is measured in accordance with clause 6.2B.4.1.0.1.1 and shall be within the limits specified in clause 6.2B.4.1.0.1.1 but with parameters applicable for the non-contiguous band combination configured.

The maximum output power levels  $p_{UMAX,c,E-UTRA}$  and  $p_{UMAX,f,c,NR}$  for the CGs are measured in accordance with clause 6.2B.4.1.0.1.1 and shall be within the limits specified in clause 6.2B.4.1.0.1.1 but with parameters applicable for the non-contiguous band combination configured.

#### 6.2B.4.1.0.1.3 Inter-band EN-DC within FR1

For inter-band dual connectivity with one uplink serving cell or more than one uplink serving cells configured for intraband UL CA on the E-UTRA CG and one uplink serving cell on the NR CG or more than one uplink serving cells configured for intra-band UL CA, the UE is allowed to set its configured maximum output power P<sub>CMAX,c(i),i</sub> for serving cell c(i) of CG i, i = 1,2, and its total configured maximum transmission power for EN-DC operation,  $P_{Total}^{EN-DC} = 10\log 10(\hat{P}_{total}^{EN-DC})$  with  $\hat{P}_{total}^{EN-DC}$  as specified in clause 7.6 of TS 38.213 [19]. For EN-DC with more than one uplink serving cells configured for intra-band UL CA on the E-UTRA CG, the  $P_{CMAX}$  applies to the entire E-UTRA CG.

For a UE configured with EN-DC and serving cell frame structure type 1, if the UE is configured with *subframeAssignment-r15* for the serving cell and E-UTRA Pcell is FDD, the UE is not expected to be configured with more than one serving cells in the uplink.

The configured maximum output power  $P_{CMAX\_E-UTRA,c}(p)$  in sub-frame p for the configured E-UTRA uplink carrier shall be set within the bounds:

$$P_{\text{CMAX\_L\_E-UTRA},c}(p) \le P_{\text{CMAX\_E-UTRA},c}(p) \le P_{\text{CMAX H\_E-UTRA},c}(p)$$

where  $P_{CMAX\_L\_E-UTRA,c}$  and  $P_{CMAX\ H\_E-UTRA,c}$  are the limits for a serving cell c as specified in TS 36.101 [5] clause 6.2.5 modified by  $P_{LTE}$  as follows:

$$\begin{aligned} P_{CMAX\_L\_E\_UTRA,c} &= MIN \; \{ \; P_{EMAX,\;EN-DC} \;, \\ (P_{PowerClass,\;EN-DC} - \Delta P_{PowerClass,\;EN-DC} \;), \; MIN(P_{EMAX,c} \;, P_{LTE}) - \Delta t_{C\_E\_UTRA,\;c}, \\ (P_{PowerClass,E\_UTRA} - \Delta P_{PowerClass,E\_UTRA}) - MAX(MPR_c + A-MPR_c + \Delta T_{IB,c} \; + \Delta t_{C\_E\_UTRA,\;c} + \Delta T_{ProSe}, P-MPR_c) \} \end{aligned}$$

$$P_{CMAX\ H\_E-UTRA,c} = MIN\ \{P_{EMAX,c},\ P_{EMAX,\ EN-DC}\ ,\ (P_{PowerClass,\ EN-DC} - \Delta P_{PowerClass,\ EN-DC}\ ),\ P_{LTE},\ P_{PowerClass,\ E-UTRA} - \Delta P_{PowerClass,\ E-UTRA}\}$$

For EN-DC with more than one uplink serving cells configured for intra-band UL CA on the E-UTRA CG,  $P_{CMAX\_L\_E-UTRA,c}$  and  $P_{CMAX\_H\_E-UTRA,c}$  are the limits for the E-UTRA CG as specified in TS 36.101 [5] clause 6.2.5A modified by  $P_{LTE}$  as follows:

$$\begin{split} P_{CMAX\_L\_E-UTRA,c} &= MIN\{10 \ log_{10} \sum p_{EMAX,c} \ - \Delta T_C \,, \, (P_{PowerClass,E-UTRA} - \Delta P_{PowerClass,E-UTRA}) - MAX(MPR + A-MPR + \Delta T_{B,c} + \Delta T_C + \Delta T_{ProSe}, \, P-MPR \,), \, P_{LTE}, \, P_{PowerClass,EN-DC} \, \} \end{split}$$

$$P_{CMAX\ H\_E-UTRA,c} = MIN\{10\ log_{10} \sum p_{EMAX,c}\,,\, P_{PowerClass,E-UTRA},\, P_{LTE},\, P_{PowerClass,EN-DC}\}$$

The configured maximum output power  $P_{CMAX_NR,c}(q)$  in physical-channel q for the configured NR carrier shall be set within the bounds:

$$P_{\text{CMAX\_L,f,c,NR}}(q) \le P_{\text{CMAX,f,c,NR}}(q) \le P_{\text{CMAX\_H,f,c,NR}}(q)$$

where  $P_{CMAX\_L\_NR,c}$  and  $P_{CMAX\_H\_NR,c}$  are the limits for a serving cell c as specified in clause 6.2.4 of TS 38.101-1 [2] modified as follows:

$$\begin{split} &P_{CMAX\_L,f,c,,NR} = MIN~\{~P_{EMAX,~EN-DC}~~,~(P_{PowerClass,~EN-DC} - \Delta P_{PowerClass,~EN-DC}~),~MIN(P_{EMAX,c}~,~P_{NR}~) - \Delta T_{C\_NR,~c},\\ &(P_{PowerClass,~NR} - \Delta P_{PowerClass,~NR}) - MAX(MAX(MPR_c,~A-MPR_c) + \Delta T_{IB,c} + \Delta T_{C\_NR,~c} + \Delta T_{RxSRS},~P-MPR_c)~\} \end{split}$$

$$P_{CMAX\_H,f,c,NR} = MIN \left\{ P_{EMAX,c}, P_{EMAX,EN-DC} \right., \\ \left( P_{PowerClass}, EN-DC - \Delta P_{PowerClass} \right), \\ \left. P_{NR} \right., \\ \left. P_{PowerClass}, NR - \Delta P_{PowerClass}, NR \right\} \\ \left. P_{PowerClass} \right., \\ \left. P_{NR} \right., \\ \left. P_{PowerClass} \right., \\ \left. P$$

## where

- P<sub>EMAX,EN-DC</sub> is the value given by the field *p-maxUE-FR1* of the *RRCConnectionReconfiguration-v1530* IE as defined in TS 36.331 [17];
- If more than one E-UTRA uplink serving cell is configured as intra-band UL CA in the E-UTRA CG, P<sub>PowerClass</sub> refers to the maximum output power of the E-UTRA intra-band CA power class given in Table 6.2.2A-1 of TS 36.101 [5];
- P<sub>LTE</sub> is the value given by the field *p-maxEUTRA-r15* of the *RRCConnectionReconfiguration-v1510* IE as defined in TS 36.331 [17];
- If more than one E-UTRA uplink serving cell is configured as intra-band UL CA in the E-UTRA CG, MPR<sub>c</sub> = MPR and A-MPR<sub>c</sub> = A-MPR with MPR and A-MPR specified in clause 6.2.3A and clause 6.2.4A of TS 36.101 [5] respectively. There is one power management term for the UE, denoted P-MPR, and P-MPR<sub>c</sub> = P-MPR. P<sub>CMAX\_E-UTRA,c</sub> is calculated under the assumption that the transmit power is increased by the same amount in dB on all component carriers within the E-UTRA CG.
- P<sub>NR</sub> is the value given by the field *p-NR-FR1* of the *PhysicalCellGroupConfig* IE as defined TS 38.331 [18];
- $\Delta t_{c\_E-UTRA, c} = 1.5 \text{ dB}$  when NOTE 2 in Table 6.2.2-1 in TS 36.101 [5] applies for a serving cell c, otherwise  $\Delta T_{c\_E-UTRA, c} = 0 \text{ dB}$ ;

- $\Delta T_{C_NR,c} = 1.5 dB$  when NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] applies for a serving cell c, otherwise  $\Delta T_{C_NR,c} = 0 dB$ ;
- ΔT<sub>IB,c</sub> specified in clause 6.2B.4.2.3 for EN-DC, the individual Power Class defined in table 6.2B.1.3 and any
  other additional power reductions parameters specified in clauses 6.2B.2 and 6.2B.3 for EN-DC are applicable to
  P<sub>CMAX\_E-UTRA,c</sub> and P<sub>CMAX,f,c,NR</sub> evaluations.
- P<sub>PowerClass, EN-DC</sub> is defined in clause 6.2B.1.3 for inter-band EN-DC;
- P<sub>PowerClass,NR</sub> is the nominal UE power of the power class that the UE supports for the NR band of the EN-DC combination as defined in clause 6.2.1 of 38.101-1 [2]; in case IE [powerClassNRPart] as defined in TS 38.331 [18] is indicated, P<sub>PowerClass,NR</sub> should use that value instead.
- P<sub>PowerClass,E-UTRA</sub> is the nominal UE power of the power class that the UE supports for the E-UTRA band of the EN-DC combination as defined in clause 6.2.2 of 36.101 [5];
- $\Delta P_{PowerClass,EN-DC} = 3$  dB for a power class 2 capable EN-DC UE when requirements of default power class had been applied as specified in sub-clause 6.2B.1; otherwise  $\Delta P_{PowerClass,EN-DC} = 0$  dB;

If the transmissions from NR and E-UTRA do not overlap, then the complete clauses for configured transmitted power for E-UTRA and NR respectively from their own specifications apply with the modifications specified above. The lower value between  $P_{PowerClass,\ EN-DC}$  or  $P_{EMAX,\ EN-DC}$  shall not be exceeded at any time by UE.

 $P_{Total}^{EN-DC} = 10\log 10(\hat{P}_{total}^{EN-DC})$  with  $P_{Total}^{EN-DC}$  the configured maximum transmission power for EN-DC operation as specified in clause 7.6 of TS 38.213 [19].

The total configured maximum transmission power for both synchronous and non-synchronous operation is

$$P_{Total}^{EN-DC} = MIN \{ P_{EMAX, EN-DC}, P_{PowerClass, EN-DC} - \Delta P_{PowerClass} \}$$

If the UE does not support dynamic power sharing,

$$P_{Total}^{EN-DC} = MIN \left\{ P_{EMAX, \, EN-DC} \right., P_{PowerClass, \, EN-DC} - \Delta P_{PowerClass, \, EN-DC} \right\} + 0.3 \, \, dB$$

If the EN-DC UE does not support dynamic power sharing, then the complete clauses for configured transmitted power for E-UTRA and NR respectively from their own specifications TS 36.101 [5] and TS 38.101-1 [2] respectively apply with the modifications specified above and  $P_{Total}^{EN-DC}$  applies.

When a UE supporting dynamic sharing is configured for overlapping E-UTRA uplink and NR uplink transmissions, the UE can set its configured maximum output power  $P_{CMAX\_E-UTRA,c}$  and  $P_{CMAX\_NR,c}$  for the configured E-UTRA and NR uplink carriers, respectively, and its configured maximum transmission power for EN-DC operation,  $\hat{P}_{Total}^{EN-DC}$ , as specified above.

The measured total maximum output power  $P_{UMAX}$  over both CGs/RATs, measured over the transmission reference time duration is

$$P_{UMAX} = 10 \log_{10} \left[ p_{UMAX,c,E-UTRA} + p_{UMAX,c,NR} \right],$$

where  $p_{UMAX,c,E-UTRA}$  and  $p_{UMAX,c,NR}$  denotes the measured output power of serving cell c for E-UTRA and NR respectively, expressed in linear scale.

The measured total configured maximum output power  $P_{UMAX}$  shall be within the following bounds:

$$P_{CMAX\_L} - T_{LOW} \left( P_{CMAX\_L} \right) \ \leq \ P_{UMAX} \ \leq \ P_{CMAX\_H} + T_{HIGH} \left( P_{CMAX\_H} \right)$$

with the tolerances  $T_{LOW}(P_{CMAX\_H})$  and  $T_{HIGH}(P_{CMAX\_H})$  for applicable values of  $P_{CMAX}$  specified in Table 6.2B.4.1.0.1.3-2.

When an UL subframe transmission p from E-UTRA overlap with a physical-channel q from the NR, then for  $P_{\text{UMAX}}$  evaluation, the E-UTRA subframe p is taken as reference period  $T_{\text{REF}}$  and always considered as the reference measurement duration and the following rules are applicable.

 $T_{\text{REF}}$  and  $T_{\text{eval}}$  are specified in Table 6.2B.4.1.0.1.3-1 when same or different subframe and physical-channel durations are used in aggregated carriers.  $P_{\text{PowerClass}, \text{EN-DC}}$  shall not be exceeded by the UE during any evaluation period of time.

Table 6.2B.4.1.0.1.3-1: PCMAX evaluation window

transmission duration	T <sub>REF</sub>	T <sub>eval</sub>
Different transmission duration in different RAT carriers	E-UTRA Subframe on all aggregated cells of E-UTRA	Min( <i>T</i> <sub>no_hopping</sub> , Physical Channel Length)

For each  $T_{REF}$ , the  $P_{CMAX\_H}$  is evaluated per  $T_{eval}$  and given by the maximum value over the transmission(s) within the  $T_{eval}$  as follows:

$$P_{\text{CMAX\_H}} = \text{MAX} \left\{ P_{\text{CMAX\_EN-DC\_H}}(p,q), P_{\text{CMAX\_EN-DC\_H}}(p,q+1), \dots, P_{\text{CMAX\_EN-DC\_H}}(p,q+n) \right\}$$

where  $P_{CMAX\_EN-DC\_H}$  are the applicable upper limits for each overlapping scheduling unit pairs (p,q), (p,q+1), up to (p,q+n) for each applicable  $T_{eval}$  duration, where q+n is the last NR UL physical-channel overlapping with E-UTRA subframe p.

While P<sub>CMAX</sub> L is computed as follows:

$$P_{\text{CMAX\_L}} = \text{MIN} \left\{ P_{\text{CMAX\_EN-DC\_L}}(p,q), P_{\text{CMAX\_EN-DC\_L}}(p,q+1), \dots, P_{\text{CMAX\_EN-DC\_L}}(p,q+n) \right\}$$

where  $P_{CMAX\_EN-DC\_L}$  are the applicable lower limits for each overlapping scheduling unit pairs (p,q), (p,q+1), up to (p,q+n) for each applicable  $T_{eval}$  duration, where q+n is the last NR UL physical-channel overlapping with E-UTRA subframe p,

With

 $P_{\text{CMAX\_EN-DC\_H}}(p,q) = \text{MIN} \left\{ 10 \log_{10} \left[ p_{\text{CMAX H\_E-UTRA},c}(p) + p_{\text{CMAX H\_f,c,NR c}}(q) \right], P_{\text{EMAX, EN-DC}}, P_{\text{PowerClass, EN-DC}} \right\}$ 

And:

a= 
$$10 \log_{10} \left[ p_{\text{CMAX\_E-UTRA},c}(p) + p_{\text{CMAX,f,c,NR}}(q) \right] > P_{Total}^{EN-DC}$$
  
b=  $10 \log_{10} \left[ p_{\text{CMAX\_E-UTRA},c}(p) + p_{\text{CMAX,f,c,NR}}(q) / X_{\text{scale}} \right] > P_{Total}^{EN-DC}$ 

If a= FALSE

 $P_{\text{CMAX\_EN-DC\_L}}(p,q) = \text{MIN} \left\{ 10 \log_{10} \left[ p_{\text{CMAX L\_E-UTRA},c}(p) + p_{\text{CMAX L,f,c,,NR }c}(q) \right], P_{\text{EMAX, EN-DC}}, P_{\text{PowerClass, EN-DC}} \right\}$ 

ELSE If (a=TRUE) AND (b=FALSE)

 $P_{\text{CMAX\_EN-DC\_L}}(p,q) = \text{MIN } \{10 \ \log_{10} \left[ p_{\text{CMAX L\_E-UTRA},c}\left(p\right) + p_{\text{CMAX L\_f},c,,NR} \ _{c}(q) \ / \text{X\_scale} \ \right], P_{\text{EMAX, EN-DC}}, P_{\text{PowerClass, EN-DC}} \}$ 

ELSE If b= TRUE

 $P_{\text{CMAX\_EN-DC\_L}}(p,q) = \text{MIN} \{10 \log_{10} [p_{\text{CMAX L\_E-UTRA},c}(p)], P_{\text{EMAX, EN-DC}}, P_{\text{PowerClass, EN-DC}}\}$ 

where

- p<sub>CMAX H, E-UTRA,c</sub> (p) is the E-UTRA higher limit of the maximum configured power expressed in linear scale;
- $p_{CMAX \text{ H }NR,c}(q)$  is the NR higher limit of the maximum configured power expressed in linear scale;
- p<sub>CMAX L\_E-UTRA,c</sub> (p) is the E-UTRA lower limit of the maximum configured power expressed in linear scale;
- $p_{\text{CMAX L}_{NR,c}}(q)$  is the NR lower limit of the maximum configured power expressed in linear scale;
- P<sub>PowerClass, EN-DC</sub> is defined in clause 6.2B.1.3-1 for inter-band EN-DC;
- X\_scale is the linear value of X dB which is configured by RRC and can only take values [0, 6]
- p<sub>CMAX\_E-UTRA,c</sub> (p) is the linear value of P<sub>CMAX\_E-UTRA,c</sub> (p), the configured max power for E-UTRA. If more than one E-UTRA uplink serving cell is configured as intra-band UL CA in the E-UTRA CG, P<sub>CMAX\_E-UTRA,c</sub> (p) will be replaced by P<sub>CMAX</sub>(p) which is the configured maximum power for the entire E-UTRA CG.
- $p_{CMAX,f,c,NR}(q)$  is the linear value of  $P_{CMAX,f,c,NR}(q)$ , the real configured max power of NR

Table 6.2B.4.1.0.1.3-2: P<sub>CMAX</sub> tolerance for Dual Connectivity E-UTRA-NR

P <sub>CMAX</sub> (dBm)	Tolerance TLOW (PCMAX_L) (dB)	Tolerance Thigh (Pcmax_h) (dB)	
23 ≤ P <sub>CMAX</sub> ≤ 33	3.0	2.0	
22 ≤ P <sub>CMAX</sub> < 23	5.0	2.0	
21 ≤ P <sub>CMAX</sub> < 22	5.0	3.0	
20 ≤ P <sub>CMAX</sub> < 21	6.0	4.0	
16 ≤ P <sub>CMAX</sub> < 20		5.0	
11 ≤ P <sub>CMAX</sub> < 16	6.0		
-40 ≤ P <sub>CMAX</sub> < 11	7.0		

NOTE 1: For UEs not indicating support of dynamic power sharing, the upper tolerance T<sub>high</sub> shall be reduced by 0.3 dB for P ≥ 20 dBm.

When E-UTRA and NR transmissions overlap and the condition (If (a=TRUE) AND (b=FALSE)) is met, SCG shall be transmitted and the following supplementary minimum requirement apply for the measured SCG power,  $P_{UMAX,f,c,NR}(q)$ , under nominal conditions.

 $10log(p_{CMAX\ L,f,c,,NR\ c}(q)/X\_scale) - T_{LOW}\left(10log(p_{CMAX\ L,f,c,,NR\ c}(q)/X\_scale)\right)\} \leq P_{UMAX,f,c,NR}\left(q\right) \leq 10log(p_{CMAX\ H,f,c,,NR\ c}(q)) + T_{HIGH}\left(10log(p_{CMAX\ H,f,c,,NR\ c}\left(q\right)\right)\right).$ 

with the tolerances T<sub>LOW</sub> and T<sub>HIGH</sub> for applicable values of P<sub>CMAX</sub> specified in Table 6.2B.4.1.0.1.3-2.

#### 6.2B.4.1.0.1.4 Inter-band EN-DC including FR2

For inter-band dual connectivity with one uplink serving cell per CG on E-UTRA and NR respectively, with NR configured in FR2, the UE is allowed to set its configured maximum output power  $P_{CMAX,c(i),i}$  for serving cell c(i) of CG i, i=1,2.

The UE maximum configured power  $P_{CMAX,c(i)}$ , on E-UTRA for the subframe i shall be set according to clause 6.2.5 from TS 36.101 [5]. Applicable inter-band  $\Delta T_{IB,c}$  parameters shall be used according to the clauses 6.2B.4.2.4 or 6.2B.4.2.5.

The UE maximum configured power  $P_{CMAX,c(j)}$ , on NR for the slot j shall be set according to clause 6.2.4 from TS 38.101-2 [3].

For the configured power measurements TS 36.101 [5] clause 6.2.5 and TS 38.101-2 [3] clause 6.2.4 are applicable.

#### 6.2B.4.1.0.1.5 Inter-band EN-DC including both FR1 and FR2

For inter-band dual connectivity with one uplink serving cell per CG on E-UTRA and NR respectively, with both CGs configured in FR1, the requirements specified in clause 6.2B.4.1.0.1.3 apply.

For inter-band dual connectivity with one uplink serving cell per CG on E-UTRA and NR respectively, with NR configured in FR2, the requirements specified in clause 6.2B.4.1.0.1.4 apply.

For inter-band dual connectivity with one uplink serving cell in first CG on E-UTRA and two uplink serving cells in second CG on NR FR1 and NR FR2 respectively, the UE is allowed to set its configured maximum output power  $P_{CMAX,c(i),i}$  for serving cell c(i), i=1,2,3 with i=1 for E-UTRA, i=2 for NR FR1 and i=3 for NR FR2.

- For serving cell on FR2, the requirements specified in clause 6.2.4 in TS 38.101-2 [3] apply to the UE maximum configured power P<sub>CMAX,c(3),3</sub> and the measured maximum configured power.
- For remaining inter-band dual connectivity involving CG1 and CG2, the requirements specified in clause 6.2B.4.1.0.1.3 apply.

### 6.2B.4.1.1 Configured Output Power Level for Intra-Band Contiguous EN-DC

## 6.2B.4.1.1.1 Test purpose

To verify the UE does not exceed the power bounds defined by  $P_{CMAX\ L}$  and  $P_{CMAX\ H}$ 

## 6.2B.4.1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

#### 6.2B.4.1.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2B.4.1.0.1.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

## 6.2B.4.1.1.4 Test description

#### 6.2B.4.1.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 6.2B.4.1.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.2B.4.1.1.4.1-1: Test configurations table for intra-band contiguous EN-DC

			Initial Conditions				
Test Environ 1 [5] clause 4	ment as specified in 4.1	TS 38.508-	Normal, TL/VL, TL	/VH, TH/VL	, TH/VH		
	TRA Test Frequencie TS 38.508-1 [5] claus		Mid range				
Test EN-DC	bandwidth combinat	ion as	Lowest N <sub>RB_agg</sub> , Hi	ghest N <sub>RB_a</sub>	99		
NR Test SCS TS 38.521-1	S as specified in Tab	le 5.3.5-1 in	Highest				
		R/E-UTRA Tes	Parameters for UE	Supportin	g DPS		
Test ID	Downlink		EN-DC	<b>Uplink Co</b>	nfiguration		
(NOTE 3)	Configuration		E-UTRA Cell			NR Cell	
	-	Modulation	RB allocation (NOTE 2)	P <sub>LTE</sub>	Modulation	RB allocation (NOTE 1)	P <sub>NR</sub>
1a-1f	N/A	QPSK	Full_Allocation	{-13, 7, 12, 15, 19, 23} for PC3 UE {-13, 7, 12, 15, 21, 26} for PC2 UE	CP-OFDM QPSK	Outer_Full	{-13, 7, 12, 15, 18, 23} for PC3 UE {-13, 7, 12, 15, 21, 26} for PC2 UE
2a-2c		QPSK	Partial_Allocation	{-10, 10, 15}	N/A	N/A	{-10, 10, 15}
3a-3c		N/A	N/A	{-10, 10, 15}	DFT-s- OFDM QPSK	Inner Full	{-10, 10, 15}
		E-UTRA Test F	Parameters for UE r				
Test ID	Downlink			Uplink Co	nfiguration		
(NOTE 3)	Configuration		E-UTRA Cell	T =		NR Cell	_
		Modulation	RB allocation (NOTE 2)	P <sub>LTE</sub>	Modulation	RB allocation (NOTE 1)	P <sub>NR</sub>
1a-1d	N/A	QPSK	Full_Allocation	{-10, 10, 15, 23} for PC3 UE {-10, 10, 15, 26} for PC2 UE	CP-OFDM QPSK	Outer_Full	{-10, 10 15, 23} for PC3 UE {-10, 10 15, 26} for PC2 UE
2a-2c		QPSK	Partial_Allocation	{-10, 10, 15}	N/A	N/A	{-10, 10 15}
3a-3c		N/A	N/A	{-10, 10, 15}	DFT-s- OFDM QPSK	Inner Full	{-10, 10 15}

## Table 6.2B.4.1.1.4.1-2: Void

NOTE 3: The suffix in Test ID identifies the configured power level being tested from the PLTE and PNR lists

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.

- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.4.1.1.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

#### 6.2B.4.1.1.4.2 Test procedure

- 1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according table 6.2B.4.1.1.4.1-1 on E-UTRA CC and NR CC respectively. For test points configured with message in Table 6.2B.4.1.1.4.3-1, NR SS only schedules UL RMC on NR slots that does not overlap with E-UTRA uplink subframe. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its P<sub>UMAX</sub> level; allow at least 200 ms from the first TPC command for the UE to reach P<sub>UMAX</sub> level.
- 3. Measure the mean transmitted power over E-UTRA component carrier and NR component carrier respectively, or/and measure the sum of mean transmitted power over E-UTRA and NR component carriers according to Table 6.2B.4.1.1.5-1 and Table 6.2B.4.1.1.5-2. The period of the measurement shall be at least the continuous duration of one active sub-frame. For TDD, only slots consisting of only UL symbols are under test.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2B.4.1.1.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

# 6.2B.4.1.1.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

Table 6.2B.4.1.1.4.3-1: RRCConnectionReconfiguration: tdm-PatternConfig if E-UTRA on FDD band and UE doesn't support dynamic power sharing

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 CHOICE{			Test ID 1d
setup SEQUENCE {			
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			

# Table 6.2B.4.1.1.4.3-2: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD	
		band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

# Table 6.2B.4.1.1.4.3-3: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	Defined as P <sub>LTE</sub> in		
	Table		
	6.2B.4.1.1.4.1-1		

## Table 6.2B.4.1.1.4.3-4: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106			
Information Element	Value/remark	Comment	Condition
PhysicalCellGroupConfig ::= SEQUENCE {			
p-NR-FR1	Defined as P <sub>NR</sub> in		
	Table		
	6.2B.4.1.1.4.1-1		
}			

# Table 6.2B.4.1.1.4.3-5: RRCConnectionReconfiguration: p-MaxUE-FR1-r15

onnection
tian matian
figuration-
IĔs
Power Class 3 UE
Power Class 2 UE

# 6.2B.4.1.1.5 Test requirement

For UE supporting DPS, the output power measured shall not exceed the values specified in Table 6.2B.4.1.1.5-1.

# Table 6.2B.4.1.1.5-1: P<sub>CMAX</sub> configured UE output power for UE supporting DPS

E-UTRA component carrier	NR component carrier	Total power measured
		over E-UTRA and NR
		component carriers

Test ID 1a	Not measured	Not measured	-10dBm ± (7+TT)
Test ID 1b	Not measured	Not measured	10dBm ± (7+TT)
Test ID 1c	Not measured	Not measured	15 ± (6+TT)
Test ID 1d	Not measured	Not measured	18 ± (5+TT)
Test ID 1e	Not measured	18 + (5+TT) / 11 – (6+TT) for PC3 UE	21.54dBm + (3+TT) / 19.64 - (5+TT) for PC3 UE
		21 + (3+TT) / 14 - (6+TT) for	24 + (2+TT) / 21.8 - (5+TT)
		PC2 UE (Rel-15 UE	for PC2 UE (Rel-15 UE
		indicates PC2 on NR band,	indicates PC2 on NR band,
		Rel-16 and forward UE	Rel-16 and forward UE
		repoting (PC2 by	reporting (PC2 by
		P <sub>PowerClass,NR</sub> , and PC2 or Not	P <sub>PowerClass,NR</sub> , and PC2 or Not
		present by	present by
		powerClassNRPart-r16))	powerClassNRPart-r16))
		21 + (3+TT) / 11 - (6+TT) for	24 + (2+TT) / 21.4 - (5+TT)
		PC2 UE (Rel-15 and forward	for PC2 UE (Rel-15 and
		UE indicates PC3 on NR	forward UE indicates PC3 on
		band, Rel-16 and forward	NR band, Rel-16 and
		UE reporting (PC2 by	forward UE reporting (PC2
		P <sub>PowerClass,NR</sub> , and PC3 by	by P <sub>PowerClass,NR</sub> , and PC3 by
		powerClassNRPart-r16))	powerClassNRPart-r16))
	Maximum output power with	N/A	Maximum output power with
Test ID 1f	reduction as defined in Table		reduction as defined in Table
Test ID II	6.2.3.5-1 of TS 36.521-1 [10]		6.2.3.5-1 of TS 36.521-1 [10]
	for PC3 UE		for PC3 UE
	Maximum output power with		Maximum output power with
	reduction as defined in Table		reduction as defined in Table
	6.2.3_1.5-1 of TS 36.521-1		6.2.3_1.5-1of TS 36.521-1
	[10] for PC2 UE		[10] for PC2 UE
Test ID 2a	-10dBm ± (7+TT)	N/A-	Not measured
Test ID 2b	10dBm ± (6+TT)	N/A-	Not measured
Test ID 2c	15dBm ± (5+TT)	N/A-	Not measured
Test ID 3a	N/A	-10dBm ± (7+TT)	Not measured
Test ID 3b	N/A	10dBm ± (6+TT)	Not measured
Test ID 3c	N/A	15dBm ± (5+TT)	Not measured
NOTE 1: In addition I	NOTE 2 in Table 6.2.2-1 in TS 36	.101 [5] and/or NOTE 3 in Table	6.2.1-1 in TS 38.101-1 [2]

NOTE 1: In addition NOTE 2 in Table 6.2.2-1 in TS 36.101 [5] and/or NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] shall apply to the tolerances.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.4.1.1.5-3

For UE not supporting DPS, the output power measured shall not exceed the values specified in Table 6.2B.4.1.1.5-2.

Table 6.2B.4.1.1.5-2: P<sub>CMAX</sub> configured UE output power for UE not supporting DPS

E-UTRA component carrier	NR component carrier	Total power measured
		over E-UTRA and NR
		component carriers

Test ID 1a	-10 dBm ± (7+TT)	-10 dBm ± (7+TT)	Not measured
Test ID 1b	10 dBm ± (6+TT)	10 dBm ± (6+TT)	Not measured
Test ID 1c	15 dBm ± (5+TT)	15 dBm ± (5+TT)	Not measured
Test ID 1d	Maximum output power with reduction as defined in Table 6.2.3.5-1 of TS 36.521-1 [10] for PC3 UE	N/A	Not measured
	Maximum output power with reduction as defined in Table 6.2.3_1.5-1 of TS 36.521-1 [10] for PC2 UE		
Test ID 2a	-10dBm ± (7+TT)	N/A	Not measured
Test ID 2b	10dBm ± (6+TT)	N/A	Not measured
Test ID 2c	15dBm ± (5+TT)	N/A	Not measured
Test ID 3a	N/A	-10dBm ± (7+TT)	Not measured
Test ID 3b	N/A	10dBm ± (6+TT)	Not measured
Test ID 3c	N/A	15dBm ± (5+TT)	Not measured

NOTE 1: In addition NOTE 2 in Table 6.2.2-1 in TS 36.101 [5] and/or NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] shall apply to the tolerances.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.4.1.1.5-3

Table 6.2B.4.1.1.5-3: Test Tolerance (UE configured UE output power)

	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB
40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB

# 6.2B.4.1.2 Configured Output Power for Intra-Band Non-Contiguous EN-DC

## 6.2B.4.1.2.1 Test purpose

To verify the UE does not exceed the power bounds defined by  $P_{CMAX\_L}$  and  $P_{CMAX\_H}$ .

# 6.2B.4.1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.2B.4.1.2.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2B.4.1.0.1.2.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

## 6.2B.4.1.2.4 Test description

#### 6.2B.4.1.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 6.2B.4.1.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.2B.4.1.2.4.1-1: Test configurations table for intra-band non-contiguous EN-DC

Initial Conditions		
Test Environment as specified in TS 38.508-1 [5]	Normal, TL/VL, TL/VH, TH/VL, TH/VH	
clause 4.1		
NR and E-UTRA Test Frequencies as specified in	Maximum Wgap	
TS 38.508-1 [5] clause 4.3.1		
Test EN-DC bandwidth combination as specified in	Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub>	
TS 38.508-1 [5] clause 4.3.1		
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-	Highest	
1 [8]		
NR/F-UTRA Test	Parameters for UF supporting DPS	

		NR/E-UTRA Test	Parameters for	<b>UE</b> supporting	DPS			
Test ID	Downlink			<b>EN-DC Uplink</b>	Configuration			
(NOTE 3)	Configuration		E-UTRA Cell		NR Cell			
		Modulation	RB allocation (NOTE 2)	P <sub>LTE</sub>	Modulation	RB allocation (NOTE 1)	P <sub>NR</sub>	
1a-1d	N/A	QPSK	Full_Allocati on	{-13, 7, 10, 23} for PC3 UE {-13, 7, 12, 26} for PC2 UE	CP-OFDM QPSK	Outer_Full	{-13, 7, 10, 23} for PC3 UE {-13, 7, 13, 26} for PC2 UE	
2a-2c		QPSK	Partial_Alloc ation	{-10, 10, 15}	N/A	N/A	{-10, 10, 15}	
3a-3c		N/A	N/A	{-10, 10, 15}	DFT-s- OFDM QPSK	Inner Full	{-10, 10, 15}	

NR/E-UTRA Test Parameters for UE not supporting DPS									
Test ID	Downlink		EN-DC Uplink Configuration						
(NOTE 3)	Configuration		E-UTRA Cell		NR Cell				
		Modulation	RB allocation (NOTE 2)	P <sub>LTE</sub>	Modulation	RB allocation (NOTE 1)	P <sub>NR</sub>		
1a-1b	N/A	QPSK	Full_Allocati on	{-10, 23} for PC3 UE {-10, 26} for PC2 UE	CP-OFDM QPSK	Outer_Full	{-10, 23} for PC3 UE {-10, 26} for PC2 UE		
2a-2c		QPSK	Partial_Alloc ation	{-10, 10, 15}	N/A	N/A	{-10, 10, 15}		
3a-3c		N/A	N/A	{-10, 10, 15}	DFT-s- OFDM QPSK	Inner Full	{-10, 10, 15}		

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].

NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1-1 in current specification.

NOTE 3: The suffix in Test ID identifies the configured power level being tested from the PLTE and PNR lists

#### Table 6.2B.4.1.2.4.1-2: Void

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.4.1.2.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

## 6.2B.4.1.2.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according table 6.2B.4.1.2.4.1-1 on E-UTRA CC and NR CC respectively. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command for the UE to reach  $P_{UMAX}$  level.
- 3. Measure the mean transmitted power over E-UTRA component carrier and NR component carrier respectively, or/and measure the sum of mean transmitted power over E-UTRA and NR component carriers according to Table 6.2B.4.1.2.5-1 and Table 6.2B.4.1.2.5-2. The period of the measurement shall be at least the continuous duration of one active sub-frame. For TDD, only slots consisting of only UL symbols are under test.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2B.4.1.2.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

#### 6.2B.4.1.2.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

Table 6.2B.4.1.2.4.3-1: RRCConnectionReconfiguration: tdm-PatternConfig if E-UTRA on FDD band and UE doesn't support dynamic power sharing

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 CHOICE{			
setup SEQUENCE {			
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			

Table 6.2B.4.1.2.4.3-2: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

Table 6.2B.4.1.2.4.3-3: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6	6.1-8		
Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	Defined as PLTE in		
	Table		
	6.2B.4.1.2.4.1-1		

# Table 6.2B.4.1.2.4.3-4: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106							
Information Element	Value/remark	Comment	Condition				
PhysicalCellGroupConfig ::= SEQUENCE {							
p-NR-FR1	Defined as P <sub>NR</sub> in						
	Table						
	6.2B.4.1.2.4.1-1						
}							

# Table 6.2B.4.1.2.4.3-5: RRCConnectionReconfiguration: p-MaxUE-FR1-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8								
Information Element	Value/remark	Comment	Condition					
nonCriticalExtension ::=		RRCConnection						
SEQUENCE {		Reconfiguration-						
-		v1530-IEs						
p-MaxUE-FR1-r15	23		Power Class 3 UE					
	26		Power Class 2 UE					
}								

# 6.2B.4.1.2.5 Test requirement

For UE supporting DPS, the output power measured shall not exceed the values specified in Table 6.2B.4.1.2.5-1.

# Table 6.2B.4.1.2.5-1: P<sub>CMAX</sub> configured UE output power for UE supporting DPS

E-UTRA com	ponent carrier	NR component carrier	Total power measured
			over E-UTRA and NR
			component carriers

Test ID 1a	Not measured	Not measured	-10dBm ± (7+TT)
Test ID 1b	Not measured	Not measured	10dBm ± (7+TT)
Test ID 1c	Not measured	10 + (7+TT) / 2 – (7+TT) for	13.0 + (6+TT) / 10.64 -
Test ID TC		PC3 UE	(7+TT) for PC3 UE
		13 + (6+TT) / 5 - (7+TT) for	15.5 + (6+TT) / 12.8 - (6+TT)
		PC2 UE (Rel-15 UE	for PC2 UE (Rel-15 UE
		indicates PC2 on NR band,	indicates PC2 on NR band,
		Rel-16 and forward UE	Rel-16 and forward UE
		reporting (PC2 by	reporting (PC2 by
		P <sub>PowerClass,NR</sub> , and PC2 or Not	P <sub>PowerClass,NR</sub> , and PC2 or Not
		present by	present by
		powerClassNRPart-r16))	powerClassNRPart-r16))
		13 + (6+TT) / 2 - (7+TT) for	15.5 + (6+TT) / 12.4 - (6+TT)
		PC2 UE (Rel-15 and forward	for PC2 UE (Rel-15 and
		UE indicates PC3 on NR	forward UE indicates PC3 on
		band, Rel-16 and forward	NR band, Rel-16 and
		UE reporting (PC2 by	forward UE reporting (PC2
		P <sub>PowerClass,NR</sub> , and PC3 by	by P <sub>PowerClass,NR</sub> , and PC3 by
		powerClassNRPart-r16))	powerClassNRPart-r16))
	Maximum output power with	N/A	Maximum output power with
Test ID 1d	reduction as defined in Table		reduction as defined in Table
	6.2.3.5-1 of TS 36.521-1 [10] for PC3 UE		6.2.3.5-1 of TS 36.521-1 [10] for PC3 UE
	Maximum output power with reduction as defined in Table		Maximum output power with reduction as defined in Table
	6.2.3 1.5-1 of TS 36.521-1		6.2.3 1.5-1 of TS 36.521-1
	[10] for PC2 UE		[10] for PC2 UE
Test ID 2a	-10dBm ± (7+TT)	N/A	Not measured
Test ID 2b	10dBm ± (6+TT)	N/A	Not measured
Test ID 2c	15dBm ± (5+TT)	N/A	Not measured
Test ID 3a	N/A	-10dBm ± (7+TT)	Not measured
Test ID 3b	N/A	10dBm ± (6+TT)	Not measured
Test ID 3c	N/A	15dBm ± (5+TT)	Not measured
		· · · · · · · · · · · · · · · · · · ·	

NOTE 1: In addition NOTE 2 in Table 6.2.2-1 in TS 36.101 [5] and/or NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] shall apply to the tolerances.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.4.1.1.5-3

For UE not supporting DPS, the output power measured shall not exceed the values specified in Table 6.2B.4.1.1.5-2.

Table 6.2B.4.1.2.5-2: P<sub>CMAX</sub> configured UE output power for UE not supporting DPS

	E-UTRA component carrier	NR component carrier	Total power measured over E-UTRA and NR component carriers
Test ID 1a	-10 dBm ± (7+TT)	-10 dBm ± (7+TT)	Not measured
Test ID 1b	Maximum output power with reduction as defined in Table 6.2.3.5-1 of TS 36.521-1 [10] for PC3 UE	N/A	Not measured
	Maximum output power with reduction as defined in Table 6.2.3_1.5-1 of TS 36.521-1 [10] for PC2 UE		
Test ID 2a	-10dBm ± (7+TT)	N/A	Not measured
Test ID 2b	10dBm ± (6+TT)	N/A	Not measured
Test ID 2c	15dBm ± (5+TT)	N/A	Not measured
Test ID 3a	N/A	-10dBm ± (7+TT)	Not measured
Test ID 3b	N/A	10dBm ± (6+TT)	Not measured
Test ID 3c	N/A	15dBm ± (5+TT)	Not measured

NOTE 1: In addition NOTE 2 in Table 6.2.2-1 in TS 36.101 [5] and/or NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] shall apply to the tolerances.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.4.1.1.5-3

Table 6.2B.4.1.2.5-3: Test Tolerance for UE configured UE output power (Separate measurements over E-UTRA and NR CCs)

Uplink TX		f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6GHz
E-UTRA	BW ≤ 20MHz	0.7 dB	1.0 dB	1.3 dB
NR	BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB
	40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB

Table 6.2B.4.1.2.5-4: Test Tolerance for UE configured UE output power (Combined measurements of E-UTRA and NR CCs)

	TT for overall output power										
				NR							
			В	BW ≤ 20MHz							
			f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	< f ≤
E-	BW≤	f ≤ 3.0GHz	0.7 dB	1.0 dB	1.0 dB	0.7 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB
UTRA	20MHz	3.0GHz < f ≤ 4.2GHz	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB

# 6.2B.4.1.3 Configured Output Power for Inter-Band EN-DC within FR1 (1 E-UTRA CC, 1 NR CC)

#### 6.2B.4.1.3.1 Test purpose

To verify the UE does not exceed the power bounds defined by P<sub>CMAX</sub> and P<sub>CMAX\_H</sub>.

## 6.2B.4.1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC with 1 E-UTRA CC and 1 NR CC within FR1.

#### 6.2B.4.1.3.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2B.4.1.0.1.3.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

## 6.2B.4.1.3.4 Test description

#### 6.2B.4.1.3.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 6.2B.4.1.3.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.2B.4.1.3.4.1-1: Test configurations table for inter-band EN-DC

Initial Conditions				
Test Environment as specified in TS 38.508-1 [5]	Normal, TL/VL, TL/VH, TH/VL, TH/VH			
clause 4.1				
NR Test Frequencies as specified in TS 38.508-1 [5]	Mid range (NOTE 4)			
clause 4.3.1				
E-UTRA Test Frequencies as specified in TS 36.508-1 [11]				
clause 4.3.1				
Test EN-DC bandwidth combination as specified in	5MHz for E-UTRA CC1 and Lowest for NR CC1,			
TS 38.508-1 [5] clause 4.3.1	Highest for E-UTRA CC1 and Highest for NR CC1			
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-	Highest			
1 [8]				
NR/E-UTRA Test	NR/E-UTRA Test Parameters for UE supporting DPS			

Test ID	Downlink		EN-DC Uplink Configuration					
(NOTE 3)	Configuration		E-UTRA Cell		NR Cell			
		Modulation	RB allocation (NOTE 2)	P <sub>LTE</sub>	Modulation	RB allocation (NOTE 1)	P <sub>NR</sub>	
1a-1h	N/A	QPSK	Partial_Alloc ation	{-13, 12, 14, 17, 18, 19, 20, 23} for PC3 UE {-13, 12, 14, 17, 18, 19, 23, 26} for PC2 UE	DFT-s- OFDM QPSK	Inner_Full	{-13, 12, 14, 17, 18, 19, 23, 23} for PC3 UE {-13, 12, 14, 17, 18, 19, 26, 26} for PC2 UE	
2a-2c		QPSK	Partial_Alloc ation	{-10, 10, 15}	N/A	N/A	{-10, 10, 15}	
3a-3c		N/A	N/A	{-10, 10, 15}	DFT-s- OFDM QPSK	Inner_Full	{-10, 10, 15}	

Test ID	Downlink	NR/E-UTRA Test Parameters for UE not supporting DPS  EN-DC Uplink Configuration					
(NOTE 3)	Configuration		E-UTRA Cell			NR Cell	
		Modulation	RB allocation (NOTE 2)	PLTE	Modulation	RB allocation (NOTE 1)	P <sub>NR</sub>
1a-1d	N/A	QPSK	Partial_Alloc ation	{-10, 10, 15, 23} for PC3 UE {-10, 10, 15, 26} for PC2 UE	CP-OFDM QPSK	Inner_Full	{-10, 10, 15, 23} for PC3 UE {-10, 10, 15, 26} for PC2 UE
2a-2c		QPSK	Partial_Alloc ation	{-10, 10, 15}	N/A	N/A	{-10, 10, 15}
3a-3c		N/A	N/A	{-10, 10, 15}	DFT-s- OFDM QPSK	Inner_Full	{-10, 10, 15}

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].

NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1-1 in current specification.

NOTE 3: The suffix in Test ID identifies the configured power level being tested from the P<sub>LTE</sub> and P<sub>NR</sub> lists

NOTE 4: For NR band n28, 30MHz test channel bandwidth is tested with Low range test frequency.

#### Table 6.2B.4.1.3.4.1-2: Void

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.

- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to Table 6.2B.4.1.3.4.1-1.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.4.1.3.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

#### 6.2B.4.1.3.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format
   0\_1 for C\_RNTI to schedule the UL RMC according table 6.2B.4.1.3.4.1-1 on E-UTRA CC and NR CC
   respectively. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits
   on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command for the UE to reach  $P_{UMAX}$  level.
- 3. Measure the mean transmitted power over E-UTRA component carrier and NR component carrier respectively, or/and measure the sum of mean transmitted power over E-UTRA and NR component carriers according to Table 6.2B.4.1.3.5-1 and Table 6.2B.4.1.3.5-2. The period of the measurement shall be at least the continuous duration of one active sub-frame. For TDD, only slots consisting of only UL symbols are under test. For FDD band in inter-band CA with both TDD band and FDD band, only slots overlapping with only UL symbols in TDD are under test.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2B.4.1.3.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

## 6.2B.4.1.3.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

Table 6.2B.4.1.3.4.3-1: RRCConnectionReconfiguration: tdm-PatternConfig if E-UTRA on FDD band and UE doesn't support dynamic power sharing

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 CHOICE{			
setup SEQUENCE {			
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			

# Table 6.2B.4.1.3.4.3-2: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD	
		band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

# Table 6.2B.4.1.3.4.3-3: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	Defined as PLTE in Table 6.2B.4.1.3.4.1-		

# Table 6.2B.4.1.3.4.3-4: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106					
Information Element	Value/remark	Comment	Condition		
PhysicalCellGroupConfig ::= SEQUENCE {					
p-NR-FR1	Defined as P <sub>NR</sub> in				
	Table				
	6.2B.4.1.3.4.1-1				
}					

# Table 6.2B.4.1.3.4.3-5: RRCConnectionReconfiguration: p-MaxUE-FR1-r15

Information Element	Value/remark	Comment	Condition
nonCriticalExtension		RRCConnection	
SEQUENCE {		Reconfiguration-	
·		v1530-IĔs	
p-MaxUE-FR1-r15	23		Power Class 3 UE
·	26		Power Class 2 UE
}			1 01101 01000 Z 0Z

# 6.2B.4.1.3.5 Test requirement

For UE supporting DPS, the output power measured shall not exceed the values specified in Table 6.2B.4.1.3.5-1.

# Table 6.2B.4.1.3.5-1: P<sub>CMAX</sub> configured UE output power for UE supporting DPS

E-UTRA component carrier	NR component carrier	Total power measured
		over E-UTRA and NR
		component carriers

Test ID 1a	Not measured	Not measured	-10dBm ± (7+TT)
Test ID 1b	Not measured	Not measured	15dBm ± (6+TT)
Test ID 1c	Not measured	Not measured	17 ± (5+TT)
Test ID 1d	Not measured	Not measured	20 + (4+TT)/ - (6+TT)
Test ID 1e	Not measured	Not measured	21 + (3+TT)/ - (5+TT)
Test ID 1f	Not measured	Not measured	22+ (2+TT)/ - (5+TT)
Test ID 1g	Not measured	23 + (2+TT) / 17 – (5+TT) for	23 + (2+TT) / 21.8 - (5+TT)
rest ib ig		PC3 UE	for PC3 UE
		26 + (2+TT) / 20 - (6+TT) for	26 + (2+TT) / 24.8 - (3+TT)
		PC2 UE (Rel-15 UE	for PC2 UE (Rel-15 UE
		indicates PC2 on NR band,	indicates PC2 on NR band,
		Rel-16 and forward UE	Rel-16 and forward UE
		reporting (PC2 by	reporting (PC2 by
		P <sub>PowerClass,NR</sub> , and PC2 or Not	P <sub>PowerClass,NR</sub> , and PC2 or Not
		present by	present by
		powerClassNRPart-r16))	powerClassNRPart-r16))
		23 + (2+TT) / 17 - (5+TT) for	26 + (2+TT) / 24.0 - (3+TT)
		PC2 UE (Rel-15 and forward	for PC2 UE (Rel-15 and
		UE indicates PC3 on NR	forward UE indicates PC3 on
		band, Rel-16 and forward	NR band, Rel-16 and
		UE reporting (PC2 by	forward UE reporting (PC2
		P <sub>PowerClass,NR</sub> , and PC3 by	by P <sub>PowerClass,NR</sub> , and PC3 by
		powerClassNRPart-r16))	powerClassNRPart-r16))
	Maximum output power with	N/A	Maximum output power with
Test ID 1h	reduction as defined in Table		reduction as defined in Table
1000112 111	6.2.3.5-1 of TS 36.521-1 [10]		6.2.3.5-1 of TS 36.521-1 [10]
	for PC3 UE		for PC3 UE
	Maximum output power with		Maximum output power with
	reduction as defined in Table		reduction as defined in Table
	6.2.3_1.5-1 of TS 36.521-1		6.2.3_1.5-1 of TS 36.521-1
	[10] for PC2 UE		[10] for PC2 UE
Test ID 2a	-10dBm ± (7+TT)	N/A	Not measured
Test ID 2b	10dBm ± (6+TT)	N/A	Not measured
Test ID 2c	15dBm ± (5+TT)	N/A	Not measured
Test ID 3a	N/A	-10dBm ± (7+TT)	Not measured
Test ID 3b	N/A	10dBm ± (6+TT)	Not measured
Test ID 3c	N/A	15dBm ± (5+TT)	Not measured
NOTE 1. In addition	NOTE 0 :- Table 0 0 0 4 :- T0 00	404 [F] and/an NOTE 2 in Table	C O 4 4 in TC OO 404 4 [0]

NOTE 1: In addition NOTE 2 in Table 6.2.2-1 in TS 36.101 [5] and/or NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] shall apply to the tolerances.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.4.1.3.5-3 and Table 6.2B.4.1.3.5-

For UE not supporting DPS, the output power measured shall not exceed the values specified in Table 6.2B.4.1.3.5-2.

Table 6.2B.4.1.3.5-2: P<sub>CMAX</sub> configured UE output power for UE not supporting DPS

E-UTRA component carrier	NR component carrier	Total power measured
		over E-UTRA and NR
		component carriers

Test ID 1a	-10 dBm ± (7+TT)	-10 dBm ± (7+TT)	Not measured
Test ID 1b	10 dBm ± (6+TT)	10 dBm ± (6+TT)	Not measured
Test ID 1c	15 dBm ± (5+TT)	15 dBm ± (5+TT)	Not measured
Test ID 1d	Maximum output power with reduction as defined in Table 6.2.3.5-1 of TS 36.521-1 [10] for PC3 UE	N/A	Not measured
	Maximum output power with reduction as defined in Table 6.2.3_1.5-1 of TS 36.521-1 [10] for PC2 UE		
Test ID 2a	-10dBm ± (7+TT)	N/A	Not measured
Test ID 2b	10dBm ± (6+TT)	N/A	Not measured
Test ID 2c	15dBm ± (5+TT)	N/A	Not measured
Test ID 3a	N/A	-10dBm ± (7+TT)	Not measured
Test ID 3b	N/A	10dBm ± (6+TT)	Not measured
Test ID 3c	N/A	15dBm ± (5+TT)	Not measured

NOTE 1: In addition NOTE 2 in Table 6.2.2-1 in TS 36.101 [5] and/or NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] shall apply to the tolerances.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.4.1.3.5-3 and Table 6.2B.4.1.3.5-

Table 6.2B.4.1.3.5-3: Test Tolerance for UE maximum output power (Separate measurements over E-UTRA and NR CCs)

Uplink TX		f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6GHz
E-UTRA	BW ≤ 20MHz	0.7 dB	1.0 dB	1.3 dB
NR	BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB
	40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB

Table 6.2B.4.1.3.5-4: Test Tolerance for UE maximum output power (Combined measurements of E-UTRA and NR CCs)

	TT for overall output power										
				NR							
			В	BW ≤ 20MHz							
			f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	< f ≤
E-	BW≤	f ≤ 3.0GHz	0.7 dB	1.0 dB	1.0 dB	0.7 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB
UTRA	20MHz	3.0GHz < f ≤ 4.2GHz	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB

For the UE which supports inter-band EN-DC configuration,  $\Delta T_{IB,c}$  in 6.2B.4.2 applies where unless otherwise stated, the same  $\Delta T_{IB,c}$  is applicable to NR band(s) part for DC configurations which have the same NR operating band combination. Unless otherwise stated,  $\Delta T_{IB,c}$  is set to zero.

6.2B.4.1.3\_1 Configured Output Power for Inter-Band EN-DC within FR1 (2 E-UTRA CCs, 1 NR CC)

6.2B.4.1.3\_1.1 Test purpose

Same test purpose as in clause 6.2B.4.1.3.1

## 6.2B.4.1.3\_1.2 Test applicability

This test case applies to all types of E-UTRA UE release 16 and forward, supporting inter-band EN-DC with 2 E-UTRA CCs and 1 NR CC FR1.

# 6.2B.4.1.3\_1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2B.4.1.0.1.3.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

# 6.2B.4.1.3\_1.4 Test description

#### 6.2B.4.1.3\_1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 6.2B.4.1.3\_1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

**OFDM** 

**QPSK** 

N/A

DFT-s-

**OFDM** 

**QPSK** 

15, 23}

{-10, 10,

15}

{-10, 10,

15}

N/A

Inner Full

15, 23}

{-10, 10, \_\_\_15}

{-10, 10,

15}

Table 6.2B.4.1.3\_1.4.1-1: Test configurations table for inter-band EN-DC

			Initial Conditions					
Test Environ	Test Environment as specified in TS 38.508-			Normal, TL/VL, TL/VH, TH/VL, TH/VH				
	1 [5] clause 4.1							
NR Test Fre	quencies as specified	l in	Mid range for MCG	and SCG				
	[5] clause 4.3.1							
	st Frequencies as spe	cified in						
	[11] clause 4.3.1							
	bandwidth combinati		Lowest N <sub>RB_agg</sub> for					
	TS 38.508-1 [5] claus		Highest N <sub>RB_agg</sub> for	E-UTRA C	Cs and Highes	t for NR CC1		
	S as specified in Tabl	e 5.3.5-1 in	Highest					
TS 38.521-1								
		R/E-UTRA Tes	Parameters for UE					
Test ID	Downlink			•	nfiguration	000 110		
(NOTE 3)	Configuration		- EUTRA PCC&SC			SCG - NR	_	
		Modulation	RB allocation	PLTE	Modulation	RB	P <sub>NR</sub>	
			(NOTE 2)			allocation (NOTE 1)		
1a-1h	N/A	QPSK	Partial_Allocation	{-13, 12,	DFT-s-	Inner_Full	{-13, 12,	
				14, 17,	OFDM		14, 17,	
				18, 19,	QPSK		18, 19,	
				20, 23}			23, 23}	
2a-2c		QPSK	Partial_Allocation	{-10, 10,	N/A	N/A	{-10, 10,	
				15}			15}	
3a-3c		N/A	N/A	{-10, 10,	DFT-s-	Inner Full	{-10, 10,	
				15}	OFDM QPSK		15}	
	ND/I	 E LITDA Toot E	l Parameters for UE r	ot cupport				
Test ID	Downlink	L-UIRA IEST F						
(NOTE 3)	Configuration	EN-DC Uplink Configuration  MCG – EUTRA PCC&SCC SCG - NR						
(113.12.0)	- Jananen	Modulation	RB allocation	P <sub>LTE</sub>	Modulation	RB	P <sub>NR</sub>	
			(NOTE 2)			allocation	- 1417	
			(,			(NOTE 1)		
1a-1d	N/A	QPSK	Partial_Allocation	{-10, 10,	DFT-s-	Inner_Full	{-10, 10,	

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].

QPSK

N/A

2a-2c

3a-3c

NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1-2 in current specification.

NOTE 3: The suffix in Test ID identifies the configured power level being tested from the P<sub>LTE</sub> and P<sub>NR</sub> lists.

1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2.1 for UE diagram.

Partial\_Allocation

N/A

- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG PCC and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are set according to Table 6.2B.4.1.3\_1.4.1-1.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.4.1.3\_1.4.3.

7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

## 6.2B.4.1.3\_1.4.2 Test procedure

- 1. Configure E-UTRA SCC according to TS 36.521-1 [10] Annex C.0, C.1, and Annex C.3.0 for all E-UTRA downlink physical channels.
- 2. The SS shall configure SCC as per TS 36.508 [11] clause 5.2A.4. Message contents are defined in clause 6.2B.4.1.3 1.4.3.
- 3. SS activates SCC by sending the MAC-CE according to TS 36.321 clauses 5.13 and 6.1.3.8. Wait for at least 2 seconds as per TS 36.133 [12] clause 8.3.3.2.
- 4. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according Table 6.2B.4.1.3\_1.4.1-1 on E-UTRA PCC and SCC and NR CC respectively. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 5. Send continuously uplink power control "up" commands in every uplink scheduling information to the UE until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command for the UE to reach  $P_{UMAX}$  level.
- 6. Measure the mean transmitted power over E-UTRA CG and NR CG respectively, or/and measure the sum of mean transmitted power over E-UTRA CG and NR CG according to Table 6.2B.4.1.3\_1.5-1 and Table 6.2B.4.1.3\_1.5-2. The period of the measurement shall be at least the continuous duration of one active subframe. For TDD, only slots consisting of only UL symbols are under test.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2B.4.1.3\_1.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

## 6.2B.4.1.3\_1.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

Table 6.2B.4.1.3\_1.4.3-1: RRCConnectionReconfiguration: tdm-PatternConfig if E-UTRA on FDD band and UE doesn't support dynamic power sharing

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 CHOICE{			
setup SEQUENCE {			
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			

Table 6.2B.4.1.3\_1.4.3-2: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

# Table 6.2B.4.1.3\_1.4.3-3: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	Defined as		
·	P <sub>LTE</sub> in Table		
	6.2B.4.1.3_1.4		
	.1-1		

# Table 6.2B.4.1.3\_1.4.3-4: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106				
Information Element	Value/remark	Comment	Condition	
PhysicalCellGroupConfig ::= SEQUENCE {				
p-NR-FR1	Defined as P <sub>NR</sub> in			
	Table			
	6.2B.4.1.3_1.4.1-1			
}				

# Table 6.2B.4.1.3\_1.4.3-5: RRCConnectionReconfiguration: p-MaxUE-FR1-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8					
Information Element	Value/remark	Comment	Condition		
nonCriticalExtension		RRCConnection			
SEQUENCE {		Reconfiguration-			
		v1530-IEs			
p-MaxUE-FR1-r15	23		Power Class 3 UE		
	26		Power Class 2 UE		
}					

# 6.2B.4.1.3\_1.5 Test requirement

For UE supporting DPS, the output power measured shall not exceed the values specified in Table 6.2B.4.1.3\_1.5-1.

# Table 6.2B.4.1.3\_1.5-1: P<sub>CMAX</sub> configured UE output power for UE supporting DPS for PC3 UE

E-UTRA CG	NR CG	Total power measured over all E-UTRA and NR
		component carriers

Test ID 1a	Not measured	Not measured	-10 dBm ± (7+TT)
Test ID 1b	Not measured	Not measured	15 dBm ± (6+TT)
Test ID 1c	Not measured	Not measured	17 dBm ± (5+TT)
Test ID 1d	Not measured	Not measured	20 dBm + (4+TT)/ - (6+TT)
Test ID 1e	Not measured	Not measured	21 dBm + (3+TT)/ - (5+TT)
Test ID 1f	Not measured	Not measured	22 dBm + (2+TT)/ - (5+TT)
Test ID 1g	Not measured	23 dBm + (2+TT) / 17 dBm -	23 dBm + (2+TT) / 21.8 dBm
Test ID 19		(5+TT)	- (5+TT)
	Maximum output power with	N/A	Maximum output power with
Test ID 1h	reduction as defined in Table		reduction as defined in Table
TOST ID III	6.2.3A.1.5-1 of TS 36.521-1		6.2.3A.1.5-1 of TS 36.521-1
	[10] for PC3 UE		[10] for PC3 UE
	Maximum output power with		Maximum output power with
	reduction as defined in Table		reduction as defined in Table
	6.2.3A.1_3.5-1 of TS 36.521-1		6.2.3A.1_3.5-1 of TS 36.521-
	[10] for PC2 UE		1 [10] for PC2 UE
Test ID 2a	-10 dBm ± (7+TT)	N/A	Not measured
Test ID 2b	10 dBm ± (6+TT)	N/A	Not measured
Test ID 2c	15 dBm ± (5+TT)	N/A	Not measured
Test ID 3a	N/A	-10 dBm ± (7+TT)	Not measured
Test ID 3b	N/A	10 dBm ± (6+TT)	Not measured
Test ID 3c	N/A	15 dBm $\pm$ (5+TT)	Not measured

NOTE 1: In addition NOTE 2 in Table 6.2.2-1 in TS 36.101 [5] and/or NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] shall apply to the tolerances.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.4.1.3\_1.5-3 and Table 6.2B.4.1.3\_1.5-4.

For UE not supporting DPS, the output power measured shall not exceed the values specified in Table 6.2B.4.1.3\_1.5-2.

Table 6.2B.4.1.3\_1.5-2: P<sub>CMAX</sub> configured UE output power for UE not supporting DPS

	E-UTRA CG	NR CG	Total power measured over all E-UTRA and NR component carriers
Test ID 1a	-10 dBm ± (7+TT)	-10 dBm ± (7+TT)	Not measured
Test ID 1b	10 dBm ± (6+TT)	10 dBm ± (6+TT)	Not measured
Test ID 1c	15 dBm ± (5+TT)	15 dBm ± (5+TT)	Not measured
Test ID 1d	Maximum output power with reduction as defined in Table 6.2.3A.1.5-1 of TS 36.521-1 [10] for PC3 UE	N/A	Not measured
	Maximum output power with reduction as defined in Table 6.2.3A.1_3.5-1 of TS 36.521-1 [10] for PC2 UE		
Test ID 2a	-10 dBm ± (7+TT)	N/A	Not measured
Test ID 2b	10 dBm ± (6+TT)	N/A	Not measured
Test ID 2c	15 dBm ± (5+TT)	N/A	Not measured
Test ID 3a	N/A	-10 dBm ± (7+TT)	Not measured
Test ID 3b	N/A	10 dBm ± (6+TT)	Not measured
Test ID 3c	N/A	15 dBm ± (5+TT)	Not measured

NOTE 1: In addition NOTE 2 in Table 6.2.2A-1 in TS 36.101 [5] and/or NOTE 3 in Table 6.2.1-1 in TS 38.101-1 [2] shall apply to the tolerances.

NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2B.4.1.3\_1.5-3 and Table 6.2B.4.1.3\_1.5-4.

Table 6.2B.4.1.3\_1.5-3: Test Tolerance for UE maximum output power (Separate measurements over E-UTRA and NR CCs)

Uplink TX		f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6GHz
E-UTRA	BW ≤ 20MHz	0.7 dB	1.0 dB	1.3 dB
NR	BW ≤ 40MHz	0.7 dB	1.0 dB	1.0 dB
	40MHz < BW ≤ 100MHz	1.0 dB	1.0 dB	1.0 dB

Table 6.2B.4.1.3\_1.5-4: Test Tolerance for UE maximum output power (Combined measurements of E-UTRA and NR CCs)

	TT for overall output power										
				NR							
			В	BW ≤ 20MHz							
			f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz	f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
E-	BW≤	f ≤ 3.0GHz	0.7 dB	1.0 dB	1.0 dB	0.7 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB
UTRA	20MHz	3.0GHz < f ≤ 4.2GHz	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB

For the UE which supports inter-band EN-DC configuration,  $\Delta T_{IB,c}$  in 6.2B.4.2 applies where unless otherwise stated, the same  $\Delta T_{IB,c}$  is applicable to NR band(s) part for DC configurations which have the same NR operating band combination. Unless otherwise stated,  $\Delta T_{IB,c}$  is set to zero.

## 6.2B.4.1.4 Configured Output Power for Inter-Band EN-DC including FR2 (1 NR CC)

#### 6.2B.4.1.4.1 Test purpose

Same test purpose as in clause 6.2.4.1 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.4.1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

The requirements of this test for NR carrier are covered in test cases 6.2B.1.1 Maximum output power for Inter-Band EN-DC including FR2, 6.2B.2.1 Maximum output power reduction for Inter-Band EN-DC including FR2 and 6.2B.3.1 UE maximum output power with additional requirements for Inter-Band EN-DC including FR2 to all types of NR UE release 15 and forward.

#### 6.2B.4.1.4.3 Minimum conformance requirements

UE configured output power requirement for E-UTRA single carrier and CA operation specified in subclauses 6.2.5 and 6.2.5A of [10] and for NR single carrier and CA operation specified in subclause 6.2.4, 6.2A.4 and 6.2D.4 of [9] apply.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.4.1.4.

## 6.2B.4.1.4.4 Test description

This test is covered by clause 6.2B.1.1 Maximum output power for Inter-Band EN-DC including FR2, 6.2B.2.1 Maximum output power reduction for Inter-Band EN-DC including FR2 and 6.2B.3.1 UE maximum output power with additional requirements for Inter-Band EN-DC including FR2.

## 6.2B.4.1.4.5 Test requirement

This test is covered by clause 6.2B.1.1 Maximum output power for Inter-Band EN-DC including FR2, 6.2B.2.1 Maximum output power reduction for Inter-Band EN-DC including FR2 and 6.2B.3.1 UE maximum output power with additional requirements for Inter-Band EN-DC including FR2.

# 6.2B.4.1.4\_1 Configured Output Power with Power Boost for Inter-Band EN-DC including FR2 (1 NR CC)

#### 6.2B.4.1.4 1.1 Test purpose

Same test purpose as in clause 6.2.4 1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.4.1.4\_1.2 Test applicability

This test case applies to all types of E-UTRA UE release 16 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC and supporting *mpr-PowerBoost-FR2-r16* UE capability.

#### 6.2B.4.1.4\_1.3 Minimum conformance requirements

UE configured output power requirement for E-UTRA single carrier and CA operation specified in subclauses 6.2.5 and 6.2.5 A of [10] and for NR single carrier specified in subclause 6.2.4\_1 of [9] apply.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2B.4.1.4.

## 6.2B.4.1.4\_1.4 Test description

Same test description as in clause 6.2.4\_1.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.2.4\_1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 4.6-1.
- 3.1. Downlink E-UTRA signals are initially set up according to TS 36.521-1 [10] Annex C, clauses C.0, C.1 and C.3.0, and uplink signals according to Annex H, clauses H.1 and H.3.0.
- 4.1. The E-UTRA UL Reference Measurement channels are set according to Table 4.6-1.

Step 6 of Initial conditions as in clause 6.2.4\_1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.

Same test procedure as in clause 6.2.4\_1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.2B.4.1.4 1.5 Test requirement

Same test requirement as in clause 6.2.4\_1.5 in TS 38.521-2 [9] for the NR carrier.

## 6.2B.4.1.5 Configured Output Power for Inter-Band EN-DC including both FR1 and FR2

#### 6.2B.4.1.5.1 Test purpose

Same test purpose as in clause 6.2.4.1 in TS 38.521-1 [8] for NR FR1 carrier and 6.2.4.1 in TS 38.521-2 [9] for NR FR2 carrier.

## 6.2B.4.1.5.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for maximum output power apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 6.2B.

## 6.2B.4.2 $\Delta T_{IB,c}$ for EN-DC

For the UE which supports inter-band EN-DC configuration,  $\Delta T_{IB,c}$  in Tables below applies where unless otherwise stated, the same  $\Delta T_{IB,c}$  is applicable to NR band(s) part for DC configurations which have the same NR operating band combination. Unless otherwise stated,  $\Delta T_{IB,c}$  is set to zero.

Unless  $\Delta T_{IB,c}$  is specified for the NE-DC configuration, the specified  $\Delta T_{IB,c}$  for the EN-DC configuration including same bands as the corresponding NE-DC configuration is applicable for the NE-DC configuration.

## 6.2B.4.2.1 Intra-Band Contiguous EN-DC

 $\Delta T_{IB,c}$  is not applicable for intra-band contiguous EN-DC.

## 6.2B.4.2.2 Intra-Band non-Contiguous EN-DC

 $\Delta T_{IB,c}$  is not applicable for intra-band non-contiguous EN-DC.

6.2B.4.2.3 Inter-Band EN-DC within FR1

6.2B.4.2.3.1  $$\Delta T_{\rm IB,c}$$  for EN-DC two bands

Table 6.2B.4.2.3.1-1: ΔT<sub>IB,c</sub> due to EN-DC(two bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔT <sub>IB,c</sub> (dB)
DC_1_n3	1	0.3
20_1_110	n3	0.3
DC_1_n5	1	0.3
	n5	0.3
DC_1_n8	1 n8	0.3 0.3
	1	0.3
DC_1_n28	n28	0.6
DO 4 77	1	0.6
DC_1_n77	n77	0.8
DC 1 n79	1	0.3
DC_1_n78	n78	0.8
DC_2_n5	2	0.3
DO_2_110	n5	0.3
50.0 44	2	0.5
DC_2_n41	n41	0.41
		0.9 <sup>2</sup>
DC_2_n66	2	0.5 0.5
	n66 2	0.3
DC_2_n71	n71	0.3
DC_2_n77	2	0.6
DC_2-2_n77	n77	0.8
	2	0.6
DC_2_n78	n78	0.8
DO 0 74	3	0.3
DC_3_n1	n1	0.3
DC 3 n5	3	0.3
DC_3_n5	n5	0.3
DC_3_n7	3	0.5
20_0_117	n7	0.5
DC_3_n8	3	0.3
	n8	0.3
DC_3_n28	3	0.3
	n28	0.3
DC_3_n41	3	0.5 0.3 <sup>3</sup>
DC_3_1141	n41	0.84
	3	0.6
DC_3_n77	n77	0.8
DO 0 70	3	0.6
DC_3_n78	n78	0.8
DC_5_n2,	5	0.3
DC_5-5_n2	n2	0.3
DC_5_n66	5	0.3
	n66	0.3
DC_5_n77	5	0.6
	n77	0.8
DC_5_n78	5	0.6 0.8
	n78 7	0.6
DC_7_n1	n1	0.5
	7	0.5
DC_7_n3	n3	0.5
DO 7 = 5	7	0.3
DC_7_n5	n5	0.3
DC 7 n8	7	0.3
DC_7_n8	n8	0.6
DC_7_n28	7	0.3
	n28	0.3
DC_7_n66,	7	0.5
DC_7-7_n66	n66	0.5
	7	0.5

DC_7_n78,	n78	0.8
DC_7-7_n78	8	0.3
DC_8_n1	n1	0.3
DC_8_n3	8	0.3
DO_0_110	n3	0.3
DC_8_n20	8 n20	0.4
	8	0.4
DC_8_n28	n28	0.5
DC_8_n41	8	0.3
B0_0_IIII	n41	0.3
DC_8_n77	8 n77	0.6
	8	0.6
DC_8_n78	n78	0.8
DC_11_n77	11	0.4
DO_11_11/1	n77	0.8
DC_11_n78	11	0.4
	n78 12	0.8
DC_12_n5	n5	0.4
DC 42 =00	12	0.8
DC_12_n66	n66	0.3
DC_12_n78	12	0.5
	n78 13	0.8
DC_13_n2	n2	0.3
50.40.00	13	0.3
DC_13_n66	n66	0.3
DC_13_n77	13	0.5
DO_10_117	n77	0.8
DC_14_n2	14	0.3
	n2 14	0.3
DC_14_n66	n66	0.3
DC_18_n77	18	0.3
DC_18_1177	n77	0.8
DC_18_n78	18	0.3
	n78 19	0.8
DC_19_n77	n77	0.8
DC_19_n78	19	0.3
DC_19_1176	n78	0.8
DC_20_n1	20	0.3
	n1 20	0.3
DC_20_n3	n3	0.3
DC 20 n7	20	0.3
DC_20_n7	n7	0.3
DC_20_n8	20	0.4
	n8 20	0.4
DC_20_n28	n28	0.5
DC 00 =70	20	0.6
DC_20_n78	n78	0.8
DC_21_n77	21	0.4
	n77	0.8
DC_21_n78	21 n78	0.4
	25	0.8
DC_25_n41	n41	0.41
		0.9 <sup>2</sup>
DC_26_n41	26	0.3
	n41	0.3

	26	0.3
DC_26_n77	n77	0.8
DO 00 TO	26	0.3
DC_26_n78	n78	0.8
	28	0.5
DC_28_n5	n5	0.5
	28	0.5
DC_28_n77	n77	0.8
DO 00 TO	28	0.5
DC_28_n78	n78	0.8
DO 00 5	30	0.3
DC_30_n5	n5	0.3
DO 00 =00	30	0.5
DC_30_n66	n66	0.8
DC_38_n78	n78	0.5
	39	0.5
DC_39_n41	n41	0.5
DC 20 =70	39	0.3
DC_39_n79	n79	0.8
DC 40 n1	n1	0.5
DC_40_n1	40	0.5
DC 40 ×415	40	0.5
DC_40_n41 <sup>5</sup>	n41	0.5
DC_40_n78	n78	0.5 <sup>6</sup>
DC_40_n79	40	0.3
DC_40_1179	n79	0.8
DC_41_n77	41	0.3
DC_41_1177	n77	0.8
DC_41_n78	41	0.3
DC_41_1176	n78	0.8
DC_41_n79	41	0.3
DO_41_11/3	n79	0.8
DC_48_n5	48	0.3
DO_40_110	n5	0.3
DC_48_n66	48	0.8
B0_10_1100	n66	0.6
DC_66_n2	66	0.5
50_00_112	n2	0.5
DC_66_n5	66	0.3
	<u>n5</u>	0.3
	66	0.5
DC_66_n41	n41	0.81
		1.32
DC_66_n71	66	0.3
	n71	0.3
DC_66_n77	66	0.6
DC_66-66_n77	n77	0.8
DC_66_n78	66	0.6
	n78	0.8

NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545-2690 MHz.

NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496-2545 MHz.

NOTE 3: Applicable for the frequency range of 2515 - 2690 MHz.

NOTE 4: Applicable for the frequency range of 2496 - 2515 MHz.

NOTE 5: Applicable for UE supporting inter-band EN-DC without simultaneous Rx/Tx.

NOTE 6: Only applicable for UE supporting inter-band carrier aggregation with uplink in one E-UTRA band and without simultaneous Rx/Tx.

6.2B.4.2.3.2  $$\Delta T_{\rm IB,c}$$  for EN-DC three bands

Table 6.2B.4.2.3.2-1:  $\Delta T_{\text{IB,c}}$  due to EN-DC (three bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔT <sub>IB,c</sub> (dB)
comigaration	1	0.3
DC_1-3_n28	3	0.3
	n28	0.6
	1	0.6
DC_1-3_n77	3	0.6
	n77	0.8
<u> </u>	1	0.6
DC_1-3_n78	3	0.6
	n78	0.8
DC_1-3_n79	1	0.3
	3	0.3 0.3
DC_1-5_n78	5	0.6
	n78	0.8
	1	0.6
DC_1-7_n3	7	0.6
	n3	0.6
	1	0.5
DC_1-7_n28	7	0.6
	n28	0.6
	1	0.6
DC_1-7_n78	7	0.6
	n78	0.8
	1	0.3
DC_1-8_n3	8	0.3
	n3	0.3
DO 4 0 70	1	0.3
DC_1-8_n78	8	0.6
	n78 1	0.8
DC_1-19_n77	19	0.3
DC_1-19_III/1	n77	0.8
	1	0.3
DC_1-19_n78	19	0.3
	n78	0.8
DC 1.10 ~70	1	0.3
DC_1-19_n79	19	0.3
	1	0.3
DC_1-20_n3	20	0.3
	n3	0.3
DO 100 00	1	0.3
DC_1-20_n28	20	0.6
	n28	0.6
DC_1-20_n78	1 20	0.3 0.3
00_1-20_11/6	n78	0.8
	1	0.3
DC_1-21_n77	21	0.3
	n77	0.8
	1	0.6
DC_1-21_n78	21	0.4
	n78	0.8
DC_1-21_n79	1	0.3
20_1 21_1110	21	0.3
DO 400 0	1	0.3
DC_1-28_n3	28	0.6
	n3	0.3
DC_1-28_n78	1 28 or p28	0.3
DC_1_n28-n78	28 or n28 n78	0.6 0.8
	1	0.8
DC_1_n28-n79	n28	0.3
DC_1-41_n28	1	0.5
	•	0.0

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	41	0.5
	n28	0.5
	1	0.5
DC_1-41_n77	41	0.5
	n77	0.8
	1	0.5
DC 1 11 ~70	41	0.5
DC_1-41_n78		
	n78	0.8
ļ	1	0.6
DC_1-42_n77	42	0.8
	n77	0.8
	1	0.3
DC_1-42_n78	42	0.8
00_1 42_11/0	n78	0.8
DC_1-42_n79	1	0.3
	42	0.8
DC_1_n77-n79	1	0.6
00_1_1177-1179	n77	0.8
	1	0.3
DC_1_n78-n79	n78	0.8
= =		
	<u>n79</u>	0.5
	2	0.5
DC_2-5_n66	5	0.3
	n66	0.5
	2	0.3
DC_2-14_n2	14	0.3
	n2	0.3
	2	0.5
DC_2-14_n66		
DC_2-2-14_n66	14	0.3
	n66	0.5
	2	0.5
DC_2-30_n66	30	0.3
Ì	n66	0.5
	2	0.5
DC_2-66_n5	66	0.5
DC_2-00_IIS		
	n5	0.3
]	2	0.5
DC_2-66_n41	66	0.5
00_2-00_11+1	n 11	0.81
	n41	1.3 <sup>2</sup>
	2	0.5
DC_2-66_n71	66	0.5
00_2-00_11/1	n71	0.3
	2	0.3
DC_2-(n)71	71	0.3
	n71	
	3	0.6
DC_3-5_n78	5	0.6
	n78	0.8
	3	0.5
DC 3.7 x20	<u>3</u> 7	0.5
DC_3-7_n28	<del>-</del>	
	n28	0.3
	<u>3</u> 7	0.6
DC_3-7_n78	7	0.6
	n78	0.8
	3	0.6
DC_3-8_n78	8	0.6
	n78	0.8
	3	0.6
DC 2.40 =77		
DC_3-18_n77	18	0.3
	n77	0.8
	3	0.6
DC_3-18_n78	18	0.3
	n78	0.8
DC_3-19_n77	3	0.6

19		10	0.2
DC_3-19_n78         19         0.3           n78         0.8           DC_3-19_n79         3         0.3           19         0.3         0.3           DC_3-20_n1         20         0.3           DC_3-20_n28         20         0.5           n28         0.5         0.5           n29         0.5         0.5           n20         0.3         0.5           DC_3-20_n78         20         0.3           DC_3-20_n78         20         0.3           DC_3-21_n78         20         0.3           DC_3-21_n77         21         0.9           n78         0.8         0.8           DC_3-21_n79         21         0.9           DC_3-21_n79         3         0.8           DC_3-28_n78         21         0.9           DC_3-28_n78         21         0.9           DC_3-28_n78         28         0.3           DC_3-28_n78         28         0.3           DC_3-28_n78         28         0.3           DC_3-28_n78         28         0.3           DC_3-28_n78         0.8         0.8           DC_3-28_n78         0.8		19 n77	0.3
DC_3-19_n78         19         0.3           DC_3-19_n79         3         0.3           DC_3-20_n1         3         0.3           DC_3-20_n28         3         0.3           DC_3-20_n28         20         0.5           DC_3-20_n78         20         0.5           DC_3-20_n78         20         0.3           DC_3-21_n77         21         0.9           n78         0.8         0.8           DC_3-21_n79         21         0.9           n78         0.8         0.3           DC_3-24_n79         23         0.5           DC_3-28_n78         0.8         0.3           DC_3-40_n1			
DC_3-19_n79         n78         0.8           DC_3-19_n79         19         0.3           3         0.3         0.3           DC_3-20_n1         20         0.3           DC_3-20_n28         20         0.5           DC_3-20_n78         20         0.5           DC_3-20_n78         20         0.3           DC_3-21_n78         0.8         0.8           DC_3-21_n77         21         0.9           n77         0.8         0.8           DC_3-21_n78         21         0.9           DC_3-21_n78         21         0.9           DC_3-21_n78         21         0.9           n77         0.8         0.8           DC_3-21_n79         3         0.8           DC_3-21_n79         21         0.9           3         0.8         0.8           DC_3-28_n78         28         0.3           DC_3-28_n78         28         0.3           DC_3-28_n78         n28         0.3           DC_3-40_n1         40         0.5           DC_3-40_n1         40         0.5           DC_3-41_n28         41         0.84           n28	DC 3-19 n78		
DC_3-19_n79         3         0.3           DC_3-20_n1         20         0.3           DC_3-20_n28         20         0.5           DC_3-20_n28         20         0.5           DC_3-20_n78         20         0.3           DC_3-20_n78         20         0.3           DC_3-21_n77         21         0.9           DC_3-21_n77         3         0.8           DC_3-21_n78         21         0.9           DC_3-21_n78         21         0.9           DC_3-21_n79         21         0.9           DC_3-21_n79         21         0.9           DC_3-21_n79         21         0.9           DC_3-28_n78         28         0.3           DC_3-40_n1         40         0.5           DC_3-40_n1         40         0.5           DC_3-41_n28         41         0.8           DC_3-41_n41         40         0.5           DC_3-41_n41         40         0.5			
DC_3-19_II/9   19			
DC_3-20_n1         3         0.3           n1         0.3         3         0.3           DC_3-20_n28         20         0.5         0.5           n28         0.5         0.5         0.5           DC_3-20_n78         20         0.3         0.5           DC_3-21_n77         21         0.9         0.8           DC_3-21_n78         3         0.8         0.8           DC_3-21_n78         21         0.9         0.9           n78         0.8         0.8         0.8           DC_3-21_n79         3         0.8         0.8           DC_3-28_n78         28         0.3         0.8           DC_3-28_n78         28         0.3         0.5           DC_3-28_n78         28         0.3         0.5           DC_3-40_n1         40         0.5         0.3           n78         0.8         0.5         0.5           DC_3-41_n28         41         0.3         0.5           DC_3-41_n28         41         0.3         0.5           DC_3-41_n77         41         0.3         0.5           DC_3-41_n77         41         0.3         0.5	DC_3-19_n79		0.3
DC_3-20_n12         20         0.3           DC_3-20_n28         20         0.5           n28         0.5         0.5           DC_3-20_n78         20         0.3           DC_3-20_n78         20         0.3           n78         0.8         0.8           DC_3-21_n77         21         0.9           n77         0.8         0.8           DC_3-21_n78         21         0.9           n78         0.8         0.8           DC_3-21_n79         3         0.8           DC_3-21_n79         21         0.9           3         0.8         0.3           DC_3-28_n78         28         0.3           DC_3-28_n78         28         0.3           n78         0.8         0.3           n78         0.8         0.3           DC_3-28_n78         n28         0.3           n78         0.8         0.3           DC_3-40_n1         40         0.5           DC_3-40_n1         40         0.5           DC_3-41_n28         41         0.3³           DC_3-41_n28         41         0.3³           DC_3-41_n77         41 <td></td> <td></td> <td></td>			
DC_3-20_n28	DC 3-20 n1		
DC_3-20_n28         3         0.3           DC_3-20_n78         20         0.5           DC_3-20_n78         20         0.3           n78         0.8         0.8           DC_3-21_n77         21         0.9           n77         0.8         0.8           DC_3-21_n78         21         0.9           n78         0.8         0.8           DC_3-21_n79         3         0.8           DC_3-28_n78         28         0.3           n78         0.8         0.5           DC_3-28_n78         28         0.3           n78         0.8         0.5           DC_3-28_n78         0.8         0.8           DC_3-28_n78         0.8         0.3           n78         0.8         0.3           n78         0.8         0.3           DC_3-42_n78         0.8         0.3           DC_3-40_n1         40         0.5           0.3         0.5         0.5           DC_3-41_n28         41         0.3           DC_3-41_n28         41         0.3           DC_3-41_n41         41         0.3           DC_3-41_n41         41<			
DC_3-20_n78         20         0.5           DC_3-20_n78         20         0.3           DC_3-21_n77         3         0.8           DC_3-21_n77         21         0.9           n77         0.8         0.8           DC_3-21_n78         21         0.9           n78         0.8         0.9           n78         0.8         0.9           n78         0.8         0.9           DC_3-21_n79         21         0.9           3         0.5         0.8           DC_3-28_n78         28         0.3           n78         0.8         0.5           DC_3-28_n78         28         0.3           n78         0.8         0.5           DC_3-28_n78         28         0.3           n78         0.8         0.5           DC_3-40_n1         40         0.5           n18         0.8         0.3           DC_3-41_n28         41         0.6           0C_3-41_n28         41         0.6           0C_3-41_n28         41         0.3           DC_3-41_n41         0.3         0.5           DC_3-41_n41         0.8			
DC_3-20_n78	DC_3-20_n28	20	0.5
DC_3-20_n78         20         0.3           n778         0.8           3         0.8           DC_3-21_n77         21         0.9           n77         0.8           BC_3-21_n78         21         0.9           DC_3-21_n79         3         0.8           DC_3-28_n78         3         0.5           DC_3-28_n78         28         0.3           DC_3-n28-n78         n28         0.3           DC_3-n28-n78         n28         0.3           DC_3-28_n78         n28         0.3           DC_3-28_n78         n28         0.3           DC_3-28_n78         n28         0.3           DC_3-8_n78         n28         0.3           DC_3-108-n78         n28         0.3           DC_3-108-n78         n28         0.3           DC_3-40_n1         40         0.5           DC_3-41_n28         41         0.8           DC_3-41_n28         41         0.8           DC_3-41_n28         41         0.8           DC_3-41_n41         41         0.84           DC_3-3         0.6         0.6           DC_3-41_n77         0.8         0.6 <td></td> <td>n28</td> <td>0.5</td>		n28	0.5
DC_3-21_n77		3	0.5
DC_3-21_n77         21         0.9           n77         0.8         3         0.8           DC_3-21_n78         21         0.9         0.8           DC_3-21_n79         21         0.9         0.8           DC_3-28_n78         28         0.3         0.5           DC_3-28_n78         28         0.3         0.5           DC_3-n28-n78         28         0.3         0.5           DC_3-n28-n78         n28         0.3         0.5           DC_3-n28-n78         n28         0.3         0.5           DC_3-n28-n78         n28         0.3         0.5           DC_3-n28-n78         n28         0.3         0.5           DC_3-40_n1         40         0.5         0.8           3         0.5         0.5         0.5           DC_3-41_n28         41         0.33         0.5           DC_3-41_n28         41         0.03         0.3           3         0.5         0.3         0.5           DC_3-41_n28         41         0.03         0.3           3         0.5         0.3         0.3           3         0.6         0.8         0.3	DC_3-20_n78	20	
DC_3-21_n77         21         0.9           n77         0.8           3         0.8           DC_3-21_n78         21         0.9           n78         0.8           DC_3-21_n79         21         0.9           21         0.9         0.5           DC_3-28_n78         28         0.3           n78         0.8         0.5           DC_3-40_n1         40         0.5           1         0.5         0.3           3         0.5         0.5           DC_3-41_n28         41         0.84           n28         0.3         0.5           3         0.5         0.3           3         0.5         0.3           0.6_3			
N77	<u> </u>		
DC_3-21_n78	DC_3-21_n77		
DC_3-21_n78         21         0.9           n78         0.8           DC_3-21_n79         21         0.9           21         0.9         0.5           DC_3-28_n78         28         0.3           DC_3-28_n78         0.8         0.5           DC_3_n28_n78         0.8         0.5           DC_3_n28_n78         0.8         0.3           DC_3_n28_n78         0.8         0.3           DC_3_0_0         0.5         0.8           DC_3_0_0         0.8         0.3           DC_3_40_n1         40         0.5           DC_3_40_n1         40         0.5           3         0.5         0.8           3         0.5         0.8           3         0.5         0.8           41         0.3³         0.5           41         0.8⁴         0.3           0.3         0.5         0.3           41         0.8⁴         0.3           0.3         0.6         0.8⁴           0.3         0.6         0.8⁴           0.3         0.6         0.8           0.3         0.6         0.8           0.3			
DC_3-21_n79         3         0.8           DC_3-21_n79         21         0.9           DC_3-28_n78         28         0.3           DC_3-28_n78         28         0.3           DC_3_n28-n78         n28         0.3           DC_3_n28-n78         n28         0.3           DC_3-40_n1         40         0.5           DC_3-40_n1         40         0.5           DC_3-41_n28         41         0.3           DC_3-41_n28         41         0.84           DC_3-41_n28         0.3         0.5           DC_3-41_n41         0.84         0.3           DC_3-41_n41         0.84         0.3           DC_3-41_n77         41         0.84           DC_3-42_n77         41         0.84           DC_3-42_n77         42         0.8           DC_3-42_n78         42         0.8           DC_3-42_n78         42         0.8           DC_3-42_n79         3         0.6           DC_3-7-8-n79         3         0.6           DC_3-n78-n79         n77         0.8           DC_3-n78-n79         n77         0.8           DC_5-7_n78         7         0.6 <td></td> <td></td> <td></td>			
DC_3-21_n79         3         0.8           DC_3-28_n78         28         0.3           DC_3-28_n78         28         0.3           DC_3_n28-n78         n78         0.8           DC_3_n28-n78         n28         0.3           DC_3-40_n1         40         0.5           DC_3-40_n1         40         0.5           DC_3-41_n28         41         0.3           DC_3-41_n28         41         0.3           DC_3-41_n41         41         0.84           DC_3-41_n41         0.84         0.3           DC_3-41_n41         3         0.6           DC_3-41_n77         41         0.84           DC_3-42_n77         41         0.84           DC_3-42_n77         42         0.8           DC_3-42_n78         42         0.8           DC_3-42_n79         3         0.6           DC_3-n78-n79         3         0.6           DC_3_n78-n79         0.8         0.8           DC_3_n78-n79         0.5         0.6           DC_5-7_n78         7         0.6           DC_5-0_n66         0.0         0.3	DC_3-21_n78		
DC_3-28_n78         21         0.9           DC_3-28_n78         28         0.3           DC_3_n28-n78         0.8         0.3           DC_3_n28-n78         n28         0.3           DC_3_n28-n78         n28         0.3           DC_3-40_n1         40         0.5           DC_3-40_n1         40         0.5           DC_3-41_n28         41         0.3           DC_3-41_n28         41         0.3           DC_3-41_n41         0.84         0.3           DC_3-41_n41         0.84         0.3           DC_3-41_n77         41         0.84           DC_3-41_n77         41         0.84           DC_3-42_n77         42         0.8           DC_3-42_n77         42         0.8           DC_3-42_n78         42         0.8           DC_3-n77-n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n77-n79         0.8         0.8           DC_3_n78-n79         n78         0.8           DC_3_n78-n79         n78         0.8           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.			
DC_3-28_n78	DC_3-21_n79		
DC_3-28_n78         28         0.3           n78         0.8           3         0.5           DC_3_n28-n78         n28         0.3           n78         0.8           3         0.5           DC_3-40_n1         40         0.5           n1         0.5           3         0.5           DC_3-41_n28         41         0.3³           DC_3-41_n28         0.3         0.5           3         0.5         0.3           3         0.5         0.3           41         0.84         0.3           0.5         0.5         0.6           0.5         0.6         0.5           41         0.84         0.33           0.6         0.5         0.6           0.6         0.33         0.6           0.6         0.33         0.6           0.6         0.33         0.6           0.6         0.6         0.8           0.6         0.8         0.6           0.6         0.8         0.6           0.6         0.8         0.6           0.6         0.8         0.6 <tr< td=""><td></td><td></td><td></td></tr<>			
DC_3_n28-n78         0.8           DC_3_n28-n78         0.5           n78         0.8           n78         0.8           n78         0.8           n78         0.8           n78         0.8           n8         0.5           n1         0.5           3         0.5           DC_3-41_n28         0.3           3         0.5           n28         0.3           3         0.5           0.84         0.33           0.64         0.33           0.64         0.33           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.8           0.6         0.8           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.6           0.6         0.6 <tr< td=""><td>DC 2.20 p.70</td><td></td><td></td></tr<>	DC 2.20 p.70		
DC_3_n28-n78         3         0.5           n78         0.3           n78         0.8           3         0.5           DC_3-40_n1         40         0.5           n1         0.5           3         0.5           DC_3-41_n28         41         0.84           n28         0.3         0.5           3         0.5         0.3           3         0.5         0.3           41         0.84         0.33           0.6         0.6         0.6           DC_3-41_n77         41         0.84           n77         0.8         0.6           DC_3-42_n77         42         0.8           DC_3-42_n77         42         0.8           DC_3-42_n78         42         0.8           DC_3-42_n79         42         0.8           DC_3-n78-n79         3         0.6           DC_3_n77-n79         0.8         0.6           DC_3_n78-n79         0.6         0.6           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3	DC_3-26_1176		
DC_3_n28-n78         n28         0.3           n78         0.8           3         0.5           DC_3-40_n1         40         0.5           n1         0.5           DC_3-41_n28         41         0.3³           DC_3-41_n28         0.3         0.5           3         0.5         0.3           3         0.5         0.3°           41         0.8⁴         0.3°           DC_3-41_n41         0.8⁴         0.6°           3         0.6         0.8⁴           n0.8⁴         0.8⁴         0.8°           DC_3-41_n77         41         0.8⁴           n77         0.8         0.6°           DC_3-42_n77         42         0.8           n77         0.8         0.6°           DC_3-42_n78         42         0.8           n78         0.8         0.6°           DC_3-42_n79         42         0.8           DC_3_n77-n79         3         0.6°           DC_3_n78-n79         n77         0.8           DC_3_n78-n79         n78         0.8           DC_5-7_n78         7         0.6°           DC_5-7_n78			
DC_3-40_n1         n78         0.8           DC_3-40_n1         40         0.5           n1         0.5         0.5           n1         0.5         0.5           DC_3-41_n28         41         0.84           n28         0.3         0.5           n28         0.3         0.5           41         0.84         0.3³           n41         0.84         0.3³           n41         0.84         0.6           n54         0.3³         0.6           n77         0.8         0.6           n77         0.8         0.6           DC_3-42_n77         42         0.8           n77         0.8         0.6           DC_3-42_n78         42         0.8           n78         0.8         0.6           DC_3-42_n79         42         0.8           DC_3-n77-n79         3         0.6           n79         0.5         0.6           DC_3_n78-n79         0.6         0.6           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3 <td>DC 3 n28-n78</td> <td></td> <td></td>	DC 3 n28-n78		
DC_3-40_n1         3         0.5           DC_3-40_n1         40         0.5           n1         0.5         0.5           3         0.5         0.5           DC_3-41_n28         41         0.3³           DC_3-41_n41         0.5         0.5           41         0.3³         0.6           DC_3-41_n77         41         0.8⁴           DC_3-41_n77         41         0.8⁴           DC_3-42_n77         42         0.8           DC_3-42_n77         42         0.8           DC_3-42_n78         42         0.8           DC_3-42_n78         42         0.8           DC_3-42_n79         3         0.6           DC_3-n77-n79         3         0.6           DC_3_n77-n79         0.8         0.6           DC_3_n78-n79         n78         0.8           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3	DC_3_1120-1176		
DC_3-40_n1         40         0.5           n1         0.5           3         0.5           DC_3-41_n28         41         0.84           n28         0.3         0.5           3         0.5         0.3           41         0.84         0.33           n41         0.84         0.84           n41         0.84         0.84           n41         0.84         0.84           n5         0.6         0.84           n77         0.8         0.8           n77         0.8         0.8           DC_3-42_n77         42         0.8           n77         0.8         0.8           DC_3-42_n78         42         0.8           n78         0.8         0.8           DC_3-42_n79         3         0.6           d2         0.8         0.8           n78         0.8         0.8           DC_3-n78-n79         n77         0.8           n78         0.8         0.8           n79         0.5         0.6           DC_5-7_n78         7         0.6           n78         0.8         0.8 <td></td> <td></td> <td></td>			
DC_3-41_n28         n1	DC 3-40 n1		
DC_3-41_n28         41         0.3           n28         0.3         0.5           n28         0.3         0.5           3         0.5         0.3³           41         0.84         0.84           0.84         0.84         0.84           0.84         0.84         0.84           0.84         0.84         0.84           0.84         0.84         0.84           0.84         0.8         0.6           0.84         0.8         0.6           0.84         0.8         0.6           0.84         0.8         0.6           0.84         0.8         0.6           0.84         0.8         0.6           0.84         0.8         0.6           0.84         0.8         0.6           0.84         0.8         0.8           0.84         0.8         0.8           0.84         0.8         0.8           0.84         0.8         0.8           0.84         0.8         0.8           0.84         0.8         0.8           0.84         0.8         0.8           0.85 <td< td=""><td>  B0_0 10_III</td><td></td><td></td></td<>	B0_0 10_III		
DC_3-41_n28         41         0.3³           n28         0.3           3         0.5           41         0.8⁴           0.3³         0.6           n41         0.8⁴           0.6         0.3³           0.6         0.3³           0.6         0.8⁴           n77         0.8           3         0.6           DC_3-42_n77         42         0.8           n77         0.8           3         0.6           DC_3-42_n78         42         0.8           DC_3-42_n78         42         0.8           DC_3-42_n79         42         0.8           DC_3_n77-n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n78-n79         n78         0.8           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3			
DC_3-41_n28         41         0.84           DC_3-41_n41         3         0.5           A1         0.3³         0.84           DC_3-41_n41         0.3³         0.6           DC_3-41_n77         41         0.3³           DC_3-41_n77         0.8         0.6           DC_3-42_n77         42         0.8           DC_3-42_n77         0.8         0.6           DC_3-42_n78         42         0.8           DC_3-42_n79         42         0.8           DC_3-42_n79         42         0.8           DC_3_n77-n79         3         0.6           DC_3_n77-n79         0.8         0.6           DC_3_n78-n79         0.6         0.8           DC_5-7_n78         0.8         0.6           DC_5-7_n78         0.6         0.6           DC_5-30_n66         0.0         0.3	DO 0.44 00		
DC_3-41_n41         n28         0.3           DC_3-41_n41         0.3³         0.6*           DC_3-41_n77         41         0.3³           DC_3-41_n77         41         0.3³           DC_3-42_n77         42         0.8           DC_3-42_n78         3         0.6           DC_3-42_n78         42         0.8           DC_3-42_n79         42         0.8           DC_3-42_n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n78-n79         0.8         0.6           DC_3_n78-n79         0.8         0.6           DC_5-7_n78         5         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3	DC_3-41_n28	41	
3     0.5       DC_3-41_n41     0.33       DC_3-41_n41     0.84       DC_3-41_n77     41     0.84       DC_3-42_n77     42     0.8       DC_3-42_n77     42     0.8       DC_3-42_n78     42     0.8       DC_3-42_n78     42     0.8       DC_3-42_n79     42     0.8       DC_3_n77-n79     3     0.6       DC_3_n77-n79     0.8       DC_3_n77-n79     0.8       DC_3_n77-n79     0.8       DC_3_n78-n79     0.6       DC_5-7_n78     0.6       DC_5-7_n78     0.6       DC_5-7_n78     0.6       DC_5-30_n66     30     0.3		n28	
DC_3-41_n41         41         0.84           n41         0.84           0.84         0.84           0.6         0.33           0.6         0.33           0.84         0.8           0.8         0.6           0.6         0.8           0.77         0.8           0.6         0.8           0.77         0.8           0.8         0.6           0.23-42_n78         42         0.8           0.23-42_n78         3         0.6           0.23-42_n79         42         0.8           0.23_n77-n79         3         0.6           0.23_n77-n79         0.8         0.8           0.23_n78-n79         0.8         0.8           0.25_n79         0.5         0.6           0.5         0.6         0.6           0.5         0.6         0.6           0.6         0.6         0.6           0.6         0.6         0.8           0.6         0.6         0.8           0.6         0.6         0.8           0.6         0.6         0.6           0.6         0.6         0.6     <			0.5
DC_3-41_n41         0.84           n41         0.33           DC_3-41_n77         41         0.6           n77         0.8           DC_3-42_n77         42         0.8           DC_3-42_n78         3         0.6           DC_3-42_n78         42         0.8           DC_3-42_n79         42         0.8           DC_3-42_n79         42         0.8           DC_3_n77-n79         3         0.6           DC_3_n77-n79         0.8         0.6           DC_3_n78-n79         0.6         0.8           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3		41	$0.3^{3}$
DC_3-41_n77     3     0.6       DC_3-41_n77     41     0.84       DC_3-42_n77     3     0.6       DC_3-42_n77     42     0.8       DC_3-42_n78     42     0.8       DC_3-42_n78     42     0.8       DC_3-42_n79     3     0.6       DC_3-42_n79     42     0.8       DC_3_n77-n79     3     0.6       DC_3_n77-n79     0.8     0.8       DC_3_n78-n79     0.6     0.8       DC_5-7_n78     0.6     0.5       DC_5-7_n78     7     0.6       DC_5-30_n66     30     0.3	DC_3-41_n41	41	
DC_3-41_n77  3		n/1	
DC_3-41_n77     41     0.3³       n77     0.8       3     0.6       DC_3-42_n77     42     0.8       n77     0.8       DC_3-42_n78     42     0.8       DC_3-42_n78     42     0.8       DC_3-42_n79     3     0.6       DC_3-177-n79     3     0.6       DC_3_n77-n79     0.8       DC_3_n78-n79     0.6       DC_3_n78     0.8       DC_5-7_n78     7     0.6       DC_5-7_n78     7     0.6       DC_5-30_n66     30     0.3			
DC_3-41_n77         0.84           n77         0.8           3         0.6           DC_3-42_n77         42         0.8           n77         0.8         0.6           DC_3-42_n78         42         0.8           DC_3-42_n79         3         0.6           DC_3-42_n79         42         0.8           DC_3_n77-n79         3         0.6           DC_3_n77-n79         0.8         0.6           DC_3_n78-n79         0.6         0.8           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3		3	
n77         0.8           3         0.6           DC_3-42_n77         42         0.8           n77         0.8         0.6           DC_3-42_n78         42         0.8           DC_3-42_n79         3         0.6           DC_3-42_n79         42         0.8           DC_3_n77-n79         3         0.6           DC_3_n78-n79         0.8         0.6           DC_3_n78-n79         0.5         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3	DC 3-41 n77	41	
DC_3-42_n77         42         0.8           n77         0.8           DC_3-42_n78         3         0.6           DC_3-42_n78         42         0.8           DC_3-42_n79         3         0.6           DC_3-n77-n79         3         0.6           DC_3_n77-n79         0.8         3           DC_3_n78-n79         0.6         0.8           DC_3_n78-n79         0.6         0.8           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3	50_0 11		
DC_3-42_n77         42         0.8           n77         0.8           DC_3-42_n78         3         0.6           DC_3-42_n78         42         0.8           DC_3-42_n79         3         0.6           DC_3-42_n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n78-n79         n77         0.8           DC_3_n78-n79         n78         0.8           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3			
DC_3-42_n78         3         0.6           DC_3-42_n78         42         0.8           n78         0.8           DC_3-42_n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n77-n79         n77         0.8           DC_3_n78-n79         n78         0.8           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3	BO 0 40 77		
DC_3-42_n78     3     0.6       DC_3-42_n78     42     0.8       DC_3-42_n79     3     0.6       DC_3_n77-n79     3     0.6       DC_3_n78-n79     n77     0.8       DC_3_n78-n79     n78     0.8       DC_5-7_n78     5     0.6       DC_5-7_n78     7     0.6       DC_5-30_n66     30     0.3	DC_3-42_n//		
DC_3-42_n78         42         0.8           n78         0.8           DC_3-42_n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n77-n79         0.8         0.6           DC_3_n78-n79         0.6         0.8           DC_3_n78-n79         0.6         0.5           DC_5-7_n78         7         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3			
n78         0.8           DC_3-42_n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n77-n79         0.8         0.6           DC_3_n78-n79         3         0.6           DC_3_n78-n79         0.8         0.8           n79         0.5         0.6           DC_5-7_n78         7         0.6           DC_5-30_n66         30         0.3	DC 2.42 p79		
DC_3-42_n79         3         0.6           DC_3_n77-n79         3         0.6           DC_3_n77-n79         0.8         0.6           DC_3_n78-n79         0.6         0.8           DC_3_n78-n79         0.8         0.8           n79         0.5         0.6           DC_5-7_n78         7         0.6           n78         0.8         0.8           DC_5-30_n66         30         0.3	DC_3-42_1176		
DC_3-42_n79         42         0.8           DC_3_n77-n79         3         0.6           n77         0.8           3         0.6           DC_3_n78-n79         n78         0.8           n79         0.5           5         0.6           DC_5-7_n78         7         0.6           n78         0.8           DC_5-30_n66         30         0.3			
DC_3_n77-n79     3     0.6       n77     0.8       3     0.6       DC_3_n78-n79     n78     0.8       n79     0.5       5     0.6       DC_5-7_n78     7     0.6       n78     0.8       5     0.3       DC_5-30_n66     30     0.3	DC_3-42_n79		
DC_3_n77-n79         n77         0.8           DC_3_n78-n79         3         0.6           n78         0.8           n79         0.5           5         0.6           DC_5-7_n78         7         0.6           n78         0.8           5         0.3           DC_5-30_n66         30         0.3			
DC_3_n78-n79     3     0.6       n78     0.8       n79     0.5       5     0.6       DC_5-7_n78     7     0.6       n78     0.8       5     0.3       DC_5-30_n66     30     0.3	DC_3_n77-n79		
DC_3_n78-n79         n78         0.8           n79         0.5           5         0.6           DC_5-7_n78         7         0.6           n78         0.8           5         0.3           DC_5-30_n66         30         0.3			
n79         0.5           5         0.6           7         0.6           n78         0.8           5         0.3           DC_5-30_n66         30         0.3	DC 3 n78-n79		
DC_5-7_n78     5     0.6       n78     0.8       DC_5-30_n66     5     0.3       DC_5-30_n66     30     0.3			
DC_5-7_n78     7     0.6       n78     0.8       5     0.3       DC_5-30_n66     30     0.3			
n78         0.8           5         0.3           DC_5-30_n66         30         0.3	DC_5-7_n78		
5     0.3       DC_5-30_n66     30     0.3			
DC_5-30_n66 30 0.3			
	DC_5-30_n66		
	ļ T		

	7	0.3
DC_7-20_n28	20	0.6
	n28	0.6
	7	0.6
DC_7-20_n1	20	0.3
DC_1-20_III		
	<u>n1</u>	0.5
	7	0.5
DC_7-20_n3	20	0.3
	n3	0.5
	7	0.3
DC_7-20_n78	20	0.3
50_7 20_1170	n78	0.8
	7	0.5
DC_7-28_n3	28	0.3
	n3	0.5
	7	0.3
DC_7-28_n78	28	0.3
	n78	0.8
	7	0.3
BO 7 00 70	<del>-</del>	
DC_7_n28-n78	n28	0.3
	n78	0.8
DO 44.00 0	14	0.3
DC_14-66_n2	66	0.5
DC_14-66-66_n2	n2	0.5
	14	0.3
DO 44.00 =00		
DC_14-66_n66	66	0.3
	n66	0.3
	18	0.3
DO 40 44 0	4.4	0.33
DC_18-41_n3	41	0.84
	n3	0.5
	18	
-	18	0.3
DC_18-41_n77	41	0.33
		0.84
	n77	0.8
	18	0.3
[		0.33
DC_18-41_n78	41	0.84
<b> </b>	n78	0.8
	19	0.3
DC_19-21_n77	21	0.4
	n77	0.8
	19	0.3
DC_19-21_n78	21	0.4
	n78	0.8
	19	0.3
DC_19-21_n79		
_	21	0.4
<u> </u>	19	0.3
DC_19-42_n77	42	0.8
Ţ	n77	0.8
	19	0.3
DC_19-42_n78	42	0.8
DO_19- <del>4</del> 2_11/0		
	n78	0.8
DC_19-42_n79	19	0.3
	42	0.8
DC 10 p77 p70	19	0.3
DC_19_n77-n79	n77	0.8
	19	0.3
DC_19_n78-n79	n78	0.8
55_15_1116-1118		0.5
	n79	
	20	0.6
DC_20_n28-n78	n28	0.6
Γ	n78	0.8
<b>50 50 50 50</b>	20	0.5
DC_20_n76-n78	n78	0.8
	117 0	1 0.0

	21	0.4
DC_21-42_n77	42	0.8
	n77	0.8
	21	0.4
DC_21-42_n78	42	0.8
	n78	0.8
DC 21 42 p70	21	0.4
DC_21-42_n79	42	0.8
DC 24 x77 x70	21	0.4
DC_21_n77-n79	n77	0.8
	21	0.4
DC_21_n78-n79	n78	0.8
	n79	0.5
DC_28_n7-n78	28	0.3
	n7	0.3
	n78	0.8
	28	0.5
DC_28-42_n78	42	0.8
	n78	0.8
	41	0.5
DC_41-42_n78	42	0.8
	n78	0.8
	66	0.3
DC_66-(n)71	71	0.3
	n71	0.3

NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545-2690 MHz.

NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496-2545 MHz.

NOTE 3: The requirement is applied for UE transmitting on the frequency range of 2515 – 2690 MHz.

NOTE 4: The requirement is applied for UE transmitting on the frequency range of 2496 – 2515 MHz.

6.2B.4.2.3.3  $\Delta$ TIB,c for EN-DC four bands

Table 6.2B.4.2.3.3-1:  $\Delta T_{IB,c}$  due to EN-DC(four bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔT <sub>IB,c</sub> (dB)
	1	0.6
DC_1-3-7_n28	3	0.6
DO_1-3-7_1120	7	0.6
	n28	0.6
<u> </u>	1	0.7
DC_1-3-7_n78	3	0.7
20_1 0 1 0	7	0.7
	n78	0.8
	1	0.6
DC_1-3-8_n78	3	0.6
	8	0.6
	n78	0.8
-	1	0.6
DC_1-3-19_n78	3	0.6
	19	0.3
	n78	0.8
DO 4 0 40 = 70	1	0.3
DC_1-3-19_n79	3	0.3
	19	0.3
	1	0.3
DC_1-3-20_n28	3	0.3
_ 	20	0.6
	n28	0.6
-	1	0.6
DC_1-3-20_n78	3	0.6
	20 n78	0.3 0.8
	1	0.6
-	3	0.8
DC_1-3-21_n77	21	0.9
	n77	0.8
	1	0.6
	3	0.8
DC_1-3-21_n78	21	0.9
	n78	0.8
	1	0.3
DC_1-3-21_n79	3	0.8
	21	0.9
	1	0.6
DC_1-3-28_n78	3	0.6
DC_1-3_n28-n78	28 or n28	0.6
	n78	0.8
	1	0.6
DC_1-3-42_n78	3	0.6
00_1-3-42_11/0	42	0.8
	n78	0.8
	1	0.6
DC_1-3-42_n79	3	0.6
	42	0.8
<u> </u>	1	0.5
DC_1-7-20_n28	7	0.6
50_1 / 20_1120	20	0.6
	n28	0.6
<u> </u>	1	0.6
DC_1-7-20_n78	7	0.7
- 320	20	0.4
	n78	0.8
<u> </u>	1	0.6
DC_1-7_n28-n78	7	0.6
	n28	0.6
	n78	0.8
DC_1-19-42_n77	1	0.6
	19	0.3

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔT <sub>IB,c</sub> (dB)
	42	0.8
	n77	0.8
	1	0.3
DC_1-19-42_n78	19	0.3
	42	0.8
	n78	0.8
DO 4 40 40 770	1	0.3
DC_1-19-42_n79	19 42	0.3
	1	0.8
	20	0.6
DC_1-20_n28-n78	n28	0.6
	n78	0.8
	1	0.6
	21	0.4
DC_1-21-42_n77	42	0.8
	n77	0.8
	1	0.3
DC_1-21-42_n78	21	0.4
DO_1-21-42_11/0	42	0.8
	n78	0.8
	1	0.3
DC_1-21-42_n79	21	0.4
	42	0.8
	2	0.5
DC_2-7-13_n66	7	0.5
DC_2-7-7-13_n66	13	0.3
	n66	0.5
DC_2-7-66_n66	7	0.5 0.5
DC_2-7-66_n66	66	0.5
DC_2-7-7-00_1100	n66	0.5
	2	0.6
DC_2-7-66_n78	7	0.5
DC_2-7-7-66_n78	66	0.6
	n78	0.8
	2	0.5
DC_2-14-66_n2	14	0.3
DC_2-14-66-66_n2	66	0.5
	n2	0.5
	2	0.5
DC_2-14-66_n66	14	0.3
DC_2-2-14-66_n66	66	0.5
	n66	0.5
	2	0.5
DC_2-66-(n)71	66	0.5
	71 n71	0.3
		0.5
	7	0.5 0.5
DC_3-7-20_n28	20	0.6
<del> </del>	n28	0.5
	3	0.6
BO 0 7 00 =0	7	0.6
DC_3-7-20_n78	20	0.3
Į	n78	0.8
	3	0.6
DC 3-7-29 p79	7	0.6
DC_3-7-28_n78	28	0.6
	n78	0.8
	3	0.6
DC_3-7_n28-n78	7	0.6
	n28	0.6

Inter-band EN-DC configuration	E-UTRA or NR Band	$\Delta T_{IB,c}$ (dB)
	n78	0.8
	3	0.8
DC 24024 579	19	0.3
DC_3-19-21_n78	21	0.9
	n78	0.8
	3	0.8
DC_3-19-21_n79	19	0.3
	21	0.9
	3	0.6
DC_3-19-42_n77	19	0.3
DC_3-19-42_11/1	42	0.8
	n77	0.8
	3	0.6
DC 240 42 =70	19	0.3
DC_3-19-42_n78	42	0.8
Γ	n78	0.8
	3	0.6
DC_3-19-42_n79	19	0.3
	42	0.8
	3	0.6
	20	0.6
DC_3-20_n28-n78	n28	0.6
Ī	n78	0.8
	3	0.8
	21	0.9
DC_3-21-42_n77	42	0.8
	n77	0.8
	3	0.8
<u> </u>	21	0.9
DC_3-21-42_n78	42	0.8
	n78	0.8
	3	0.8
DC_3-21-42_n79	21	0.9
	42	0.8
	7	0.3
	20	0.6
DC_7-20_n28-n78	n28	0.6
	n78	0.8
	19	0.3
<u> </u>	21	0.4
DC_19-21-42_n77	42	0.8
	n77	0.8
	19	0.3
<u> </u>	21	0.4
DC_19-21-42_n78	42	0.8
	n78	0.8
+	19	0.3
DC_19-21-42_n79	21	0.4
	42	0.8
	14	0.0

6.2B.4.2.3.4  $\Delta$ TIB,c for EN-DC five bands

Table 6.2B.4.2.3.4-1:  $\Delta T_{IB,c}$  due to EN-DC (five bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔT <sub>IB,c</sub> (dB)
	1	0.6
	3	0.6
DC_1-3-7-20_n28	7	0.6
	20	0.6
	n28	0.6
	1	0.6
	3	0.6
DC_1-3-7-20_n78	7	0.6
	20	0.6
	n78	0.6
	1	0.7
DO 4.0.7 = 00 = 70	3	0.7
DC_1-3-7_n28-n78	7	0.7
	n28	0.6
	n78	0.8
	3	0.6 0.6
DC_1-3-19-42_n78	19	0.8
DC_1-3-19-42_11/6	42	0.8
	n78	0.8
	1	0.6
	3	0.6
DC_1-3-19-42_n79	19	0.3
	42	0.8
	1	0.6
	3	0.6
DC_1-3-20_n28-n78	20	0.6
DO_1 0 20_1120 1110	n28	0.6
	n78	0.8
	1	0.6
	3	0.8
DC_1-3-21-42_n78	21	0.9
	42	0.8
	n78	0.6
	1	0.6
DC 1 2 21 42 p70	3	0.8
DC_1-3-21-42_n79	21	0.9
	42	0.8
	1	0.6
	7	0.7
DC_1-7-20_n28-n78	20	0.6
	n28	0.6
	n78	0.8
	1	0.3
<b>DO</b> 4 40 04 15 -5	19	0.3
DC_1-19-21-42_n78	21	0.4
	42	0.8
	n78	0.8
	1	0.3
DC_1-19-21-42_n79	19	0.3
	21	0.4
	42	0.8
	3 7	0.6
DC 2 7 20 p28 p79	20	0.6
DC_3-7-20_n28-n78	n28	0.6 0.6
	n78	0.8

#### 6.2B.4.2.3.5 ΔTIB,c for EN-DC six bands

Table 6.2B.4.2.3.5-1:  $\Delta T_{IB,c}$  due to EN-DC (six bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔT <sub>IB,c</sub> (dB)
	1	0.7
	3	0.7
DC 1 2 7 20 x20 x70	7	0.7
DC_1-3-7-20_n28-n78	20	0.6
	n28	0.6
	n78	0.8

## 6.2B.4.2.3a Inter-band NE-DC within FR1

Unless  $\Delta T_{IB,c}$  is specified in this clause, the value of  $\Delta T_{IB,c}$  for the correspondingly specified EN-DC configuration in clause 6.2B.4.2.3 is applicable.

Table 6.2B.4.2.3a-1: ΔT<sub>IB,c</sub> due to NE-DC(two bands)

Inter-band NE-DC configuration	E-UTRA or NR Band	ΔT <sub>IB,c</sub> (dB)
DC =28 20	n28	0.3
DC_n28_39	39	0.3

## 6.2B.4.2.4 Inter-band EN-DC including FR2

## 6.2B.4.2.4.1 $\Delta T_{IB,c}$ for EN-DC two bands

Unless otherwise stated,  $\Delta T_{IB,c}$  for E-UTRA and NR FR2 bands of inter-band EN-DC combinations defined in table 5.5B.5.1-1 is set to zero.

## Table 6.2B.4.2.4.1-1: Void

## 6.2B.4.2.4.2 $\Delta T_{IB,c}$ for EN-DC three bands

Unless otherwise stated,  $\Delta T_{IB,c}$  for NR FR2 bands is set to zero, and  $\Delta T_{IB,c}$  for constituent E-UTRA bands for inter-band EN-DC defined in table 5.5B.5.2-1 is the same as those for the corresponding E-UTRA CA configuration specified in TS 36.101 [4], without the NR FR2 bands.

#### Table 6.2B.4.2.4.2-1: Void

## 6.2B.4.2.4.3 $\Delta T_{IB,c}$ for EN-DC four bands

Unless otherwise stated,  $\Delta T_{IB,c}$  for NR FR2 bands is set to zero, and  $\Delta T_{IB,c}$  for constituent E-UTRA bands for inter-band EN-DC defined in table 5.5B.5.3-1 is the same as those for the corresponding E-UTRA CA configuration specified in TS 36.101 [4], without the NR FR2 bands.

## Table 6.2B.4.2.4.3-1: Void

## 6.2B.4.2.4.4 $\Delta T_{IB,c}$ for EN-DC five bands

Unless otherwise stated,  $\Delta T_{IB,c}$  for NR FR2 bands is set to zero, and  $\Delta T_{IB,c}$  for constituent E-UTRA bands for inter-band EN-DC defined in table 5.5B.5.4-1 is the same as those for the corresponding E-UTRA CA configuration specified in TS 36.101 [4], without the NR FR2 bands.

#### Table 6.2B.4.2.4.4-1: Void

6.2B.4.2.4.5 Void

## 6.2B.4.2.5 Inter-band EN-DC including both FR1 and FR2

## 6.2B.4.2.5.1 $\Delta T_{IB,c}$ for EN-DC three bands

Unless otherwise stated, for inter-band EN-DC configurations defined in table 5.5B.6.2-1,  $\Delta T_{IB,c}$  for constituent NR FR2 bands is set to zero, and  $\Delta T_{IB,c}$  for constituent E-UTRA and NR FR1 bands is the same as those for the corresponding inter band EN-DC configuration without the NR FR2 bands specified in 6.2B.4.2.3.

#### Table 6.2B.4.2.5.1-1: Void

## 6.2B.4.2.5.2 $\Delta T_{IB,c}$ for EN-DC four bands

Unless otherwise stated, for inter-band EN-DC configurations defined in table 5.5B.6.3-1,  $\Delta T_{IB,c}$  for constituent NR FR2 bands is set to zero, and  $\Delta T_{IB,c}$  for constituent E-UTRA and NR FR1 bands is the same as those for the corresponding inter band EN-DC configuration without the NR FR2 bands specified in 6.2B.4.2.3.

## 6.2B.4.2.5.3 $\Delta T_{IB,c}$ for EN-DC five bands

Unless otherwise stated, for inter-band EN-DC configurations defined in table 5.5B.6.4-1,  $\Delta T_{IB,c}$  for constituent NR FR2 bands is set to zero, and  $\Delta T_{IB,c}$  for constituent E-UTRA and NR FR1 bands is the same as those for the corresponding inter band EN-DC configuration without the NR FR2 bands specified in 6.2B.4.2.3.

#### 6.2B.4.2.5.4 $\Delta T_{IB,c}$ for EN-DC six bands

Unless otherwise stated, for inter-band EN-DC configurations defined in table 5.5B.6.5-1,  $\Delta T_{IB,c}$  for constituent NR FR2 bands is set to zero, and  $\Delta T_{IB,c}$  for constituent E-UTRA and NR FR1 bands is the same as those for the corresponding inter band EN-DC configuration without the NR FR2 bands specified in 6.2B.4.2.3.

## 6.2B.5 Configured Output Power for NR-DC

## 6.2B.5.1 Configured Output power Level

## 6.2B.5.1.1 Configured Output Power Level for Inter-band NR-DC between FR1 and FR2

## 6.2B.5.1.1.1 Test purpose

Same test purpose as in clause 6.2.4.1 in TS 38.521-1 [8] for NR FR1 carrier and 6.2.4.1 in TS 38.521-2 [9] for NR FR2 carrier.

## 6.2B.5.1.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for configured output power apply and are tested as part of the standalone NR within FR1 in clause 6.2.4 in TS 38.521-1 [8] and standalone NR within FR2 in clause 6.2.4 in TS 38.521-2 [9].

## 6.2E Transmitter power for V2X in FR1

## 6.2E.1 UE Maximum Output Power for V2X

## 6.2E.1.0 Minimum conformance requirements

## 6.2E.1.0.1 UE maximum output power for Intra-band contiguous V2X

For intra-band contiguous V2X operating UE, the allowed UE maximum output power shall be applied in Table 6.2.2-1 [5] for E-UTRA SL transmission or applied in Table 6.2.1-1 [2] for NR SL transmission, respectively.

Table 6.2E.1.0.1-1: Maximum output power for V2X combination (continuous sub-blocks)

V2X configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)	
V2X_(n)47AA			23	+2/-3 <sup>1</sup>	
NOTE 1: If all transmitted resource blocks over all component carriers are confined within F <sub>UL_low</sub> and F <sub>UL_low</sub> + 4 MHz or/and F <sub>UL_high</sub> - 4 MHz and F <sub>UL_high</sub> , the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB					

NOTE 3: Only single switched UL is supported

NOTE 2: Power Class 3 is the default power class unless otherwise stated.

## 6.2E.1.0.2 UE maximum output power for Intra-band non-contiguous V2X

For intra-band non-contiguous V2X operating UE, the allowed UE maximum output power shall be applied in Table 6.2.2-1 [5] for E-UTRA SL transmission or applied in Table 6.2.1-1 [2] for NR SL transmission, respectively.

Table 6.2E.1.0.2-1: Maximum output power for V2X combination (non-contiguous sub-blocks)

V2X configuration	Power class 2 (dBm)	Tolerance (dB)	Power class 3 (dBm)	Tolerance (dB)	
V2X_47A_n47A 23 +2					
NOTE 1: If all transmitted resource blocks over all component carriers are confined within F <sub>UL_low</sub> and F <sub>UL_low</sub> + 4 MHz or/and F <sub>UL_high</sub> , the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB					
NOTE 2: Power Cla	ss 3 is the default power class	unless otherwise stated.			

NOTE 3: Only single switched UL is supported

#### 6.2E.1.0.3 UE maximum output power for Inter-band V2X

For the inter-band con-current NR V2X operation, the maximum output power is specified in Table 6.2E.1.0.3-1. The period of measurement shall be at least one sub frame (1ms).

Table 6.2E.1.0.3-1: Con-current V2X UE Power Class

V2X con-current operating band Configuration	Class 1 (dBm)	Tolerance (dB)	Class 2 (dBm)	Tolerance (dB)	Class 3 (dBm)	Tolerance (dB)	Class 4 (dBm)	Tolerance (dB)
V2X_20A_n38A					23	+2/-34		
V2X_n71A_47A					23	+2/-34		

NOTE 1: The con-current band combinations is used for NR V2X Service.

NOTE 2: PPowerClass is the maximum UE power specified without taking into account the tolerance

NOTE 3: For inter-band con-current aggregation the maximum power requirement apply to the total transmitted power over all component carriers (per UE).

NOTE 4: <sup>4</sup> refers to the transmission bandwidths (Figure 5.6-1) confined within F<sub>UL\_low</sub> and F<sub>UL\_low</sub> + 4 MHz or F<sub>UL\_high</sub> – 4 MHz and F<sub>UL\_high</sub>, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB

## 6.2E.1.1 UE maximum output power for Intra-band contiguous V2X

## 6.2E.1.1.1 Test purpose

To verify that UE's transmit power doesn't exceed the range prescribed by the specified power value.

## 6.2E.1.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.2E.1.0.1. The requirements in this test case can be well covered in clause 6.2.2G of TS 36.521-1 [10] and clause 6.2E.1 of TS 38.521-1 [8] and don't need to be tested again.

## 6.2E.1.2 UE maximum output power for Intra-band non-contiguous V2X

## 6.2E.1.1.1 Test purpose

To verify that UE's transmit power doesn't exceed the range prescribed by the specified power value.

## 6.2E.1.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.2E.1.0.2. The requirements in this test case can be well covered in clause 6.2.2G of TS 36.521-1 [10] and clause 6.2E.1 of TS 38.521-1 [8] and don't need to be tested again.

## 6.2E.1.3 UE maximum output power for Inter-band V2X

## 6.2E.1.3.1 UE maximum output power for Inter-band V2X with E-UTRA Uu and NR Sidelink

#### Editor's note:

- Connection diagram is FFS
- Generic test procedure is FFS
- Message exception is FFS
- Test requirements are FFS

## 6.2E.1.3.1.1 Test purpose

Same test purpose as in clause 6.2E.1.1.1 in TS 38.521-1 [8].

## 6.2E.1.3.1.2 Test applicability

This test applies to all types of E-UTRA UE release 16 and forward supporting concurrent operation between E-UTRA Uu and NR sidelink.

## 6.2E.1.3.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.1.0.3.

## 6.2E.1.3.1.4 Test description

## 6.2E.1.3.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and test channel bandwidths based on NR operating bands specified in clause 5.3E.3, channel bandwidths and sub-carrier spacings for the NR sidelink

carrier specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each E-UTRA-NR V2X band combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.1.3.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2 of TS 36.521-1 [10] for E-UTRA Uu carrier. The details of sidelink reference measurement channels (RMCs) are specified in A.7 of TS 38.521-1 [8] for NR V2X carrier. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521.1 [10] Annex C.2 for E-UTRA Uu carrier.

Table 6.2E.1.3.1.4.1-1: Test configuration table

	Initial Conditions					
	Environment as spects.508-1 [6] clause 4.7		Normal, TL/VL, TL/VI	H, TH/VL, TH/VH		
[11] sı	Frequencies as specubclause 4.3.1 for E s.508-1 [6] clause 4.3	-UTRA carrier and		A Uu carrier and NR sid RA Uu carrier and NR si		
Test inter-band V2X bandwidth combination as specified in clause 5.3E.3.  Lowest for E-UTRA Uu carrier and NR sidelink carrier Highest for E-UTRA Uu carrier and NR sidelink carrier						
	SCS for the NR carri 3.521-1 [8] Table 5.3		15kHz			
			Test Parameters			
Test		E-UTRA Uu carrie	er	NR side	elink Carrier	
ID	Downlink	Uplink Co	onfiguration	Modulation	PSCCH and PSSCH RB	
	Configuration	Modulation	RB allocation allocation			
			(Note 1) (Note 2)			
1	1 N/A QPSK Partial_Allocation CP-OFDM QPSK Inner_Full					
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in current specification.  NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1E-1 in TS 38.521-1 [8].						

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, FFS for TE diagram and clause FFS for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The parameter settings for the V2X sidelink transmission over PC5 are pre-configured according to TS 38.508-1 [5] clause 4.10. Message content exceptions are defined in clause 6.2E.1.3.1.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0, and uplink signals according to TS 36.521-1 [10] Annex H for the E-UTRA cell.
- 4. The E-UTRA UL Reference Measurement channels and the V2X Reference Measurement Channel are set according to Table 6.2E.1.3.1.4.1-1.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in State FFS according to TS 36.508 [7] clause FFS.

## 6.2E.1.3.1.4.2 Test procedure

- 1. The SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the E-UTRA UL RMC according to Table 6.2E.1.3.1.4.1-1. The UE starts to perform the NR sidelink communication according to *SL-PreconfigurationNR*. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the E-UTRA UL and NR sidelink RMCs.
- 2. Send continuously uplink power control "up" commands in the uplink scheduling information to the UE to ensure that the UE transmits at PUMAX level. Configure the UE to transmit PSCCH and PSSCH with the PUMAX level of each test points.
- 3. Measure the mean power over all component carriers in the inter-band con-current V2X configuration. The period of measurement shall be at least continuous duration of one sub-frame (1ms).

#### 6.2E.1.3.1.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6 for E-UTRA Uu carrier and TS 38.508-1 [6] clause 4.6.3 for NR sidelink carrier with the following exceptions:

**FFS** 

6.2E.1.3.1.5 Test requirement

**FFS** 

6.2E.1.3.2 UE maximum output power reduction for Inter-band V2X with NR Uu and E-UTRA V2X

#### Editor's note:

- Connection diagram is FFS
- Generic test procedure is FFS
- Message exception is FFS
- Test requirements are FFS

## 6.2E.1.3.2.1 Test purpose

Same test purpose as in clause 6.2E.1.1.1 in TS 38.521-1 [8].

## 6.2E.1.3.2.2 Test applicability

This test applies to all types of NR UE release 16 and forward supporting concurrent operation between NR Uu and E-UTRA V2X.

#### 6.2E.1.3.2.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.1.0.3.

6.2E.1.3.2.4 Test description

## 6.2E.1.3.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and test channel bandwidths based on NR operating bands specified in clause 5.3E.3, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA V2X carrier are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each E-UTRA-NR V2X band combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.1.3.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2 of TS 38.521-1 [8] for NR Uu carrier. The details of sidelink reference measurement channels (RMCs) are specified in Annex A.6 of TS 36.521-1 [10] for E-UTRA V2X carrier. Configurations of PDSCH and PDCCH before measurement are specified in TS 38.521-1 [8] Annex C.2 for NR Uu carrier.

Table 6.2E.1.3.2.4.1-1: Tes	t configuration table
-----------------------------	-----------------------

	Initial Conditions						
	Environment as sp clause 4.1.	ecified in TS 38.508-	Normal, TL/VL, TL	_/VH, TH/VL, TH/VH			
[11] sı	ubclause 4.3.1 for	ecified in TS 36.508 E-UTRA carrier and 4.3.1 for NR carrier.	Low range for NR High range for NR	Uu carrier and E-UTRA Uu carrier and E-UTR	sidelink carrier sidelink carrier		
		ndwidth combination as		carrier and E-UTRA sid			
specif	ied in clause 5.3E	.3.	Highest for NR Uu	ı carrier and E-UTRA si	delink carrier		
	SCS for the NR ca 5.521-1 [8] Table 5	rrier as specified in 5.3.5-1.	15kHz				
			Test Parameters	•			
Test		NR Uu Carrier		E-UTRA	V2X Carrier		
ID	Downlink	Uplink Confi	guration	Modulation	PSSCH RB allocation		
	Configuration	Modulation	RB allocation				
			(Note 1)				
1	N/A	DFT-s-OFDM QPSK	Inner Full QPSK 48@2 for 10MHz BW				
			96@2 for 20MHz BW				
NOTE	1: The specific	configuration of each RB	allocation is defined	d in Table 6.1E-1 in TS	38.521-1 [8].		

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, FFS for TE diagram and clause FFS for UE diagram.
- 2. The parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3. The parameter settings for the E-UTRA V2X sidelink transmission are pre-configured according to TS 38.508-1 [5] subclause 4.10. Message content exceptions are defined in clause 6.2E.1.3.2.4.3.
- 3. Downlink signals are initially set up according to TS 38.521-1 [8] Annex C.0, and uplink signals according to TS 38.521-1 [8] Annex G for the NR cell.
- 4. The NR UL Reference Measurement channels and the E-UTRA V2X Reference Measurement Channel are set according to Table 6.2E.1.3.2.4.1-1.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 8. Ensure the UE is in state FFS according to TS 38.508-1 [6] clause FFS.

#### 6.2E.1.3.2.4.2 Test procedure

- The SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the NR UL RMC according to Table 6.2E.1.3.2.4.1-1 on NR CC. The UE starts to perform the E-UTRA V2X sidelink communication according to SL-V2X-Preconfiguration. Since the UL has no payload and no loopback data to send, the UE transmits uplink MAC padding bits on the NR UL and E-UTRA V2X sidelink RMC.
- 2. Send continuously uplink power control "up" commands to the UE until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command starting in this step for the UE to reach  $P_{UMAX}$  level.
- 3. Measure the mean power over all component carriers in the inter-band con-current V2X configuration. The period of the measurement shall be at least the continuous duration of one active sub-frame (1ms). For TDD slots with transient periods are not under test.

## 6.2E.1.3.2.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1 for NR Uu carrier and TS 36.508 [11] clause 4.6 for E-UTRA V2X sidelink carrier with the following exceptions:

**FFS** 

## 6.2E.1.3.2.5 Test requirement

FFS

## 6.2E.2 UE maximum output power reduction for V2X

## 6.2E.2.0 Minimum conformance requirements

## 6.2E.2.0.1 UE maximum output power reduction for Intra-band V2X

For intra-band V2X operating UE, maximum output power reduction specified in clause 6.2.3G [5] and in clause 6.2E.2 [2] apply, respectively.

## 6.2E.2.0.2 UE maximum output power reduction for Inter-band V2X

For the inter-band con-current NR V2X operation, the allowed maximum power reduction (MPR) for the maximum output power shall be applied per each component carrier. The MPR requirements in subclause 6.2.3 of TS 36.101 [5] apply for E-UTRA Uu operation in licensed band, and the MPR requirements in subclause 6.2E.2 of TS 38.101-1 [2] apply for NR sidelink operation. The MPR requirements in subclause 6.2.3G of TS 36.101 [5] apply for E-UTRA V2X operation, and the MPR requirements in subclause 6.2.2 of TS 38.101-1 [2] apply for NR Uu operation.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.2E.2.

## 6.2E.2.1 UE maximum output power reduction for Intra-band V2X

## 6.2E.2.1.1 Test purpose

To verify that the backoff of UE's transmit power doesn't exceed the range prescribed by the specified MPR value and tolerance specified in clause of configured output power.

## 6.2E.2.1.2 Test applicability

This test applies to all types of UE release 16 and forward, supporting E-UTRA-NR intra-band contiguous V2X configuration or E-UTRA-NR intra-band non-contiguous V2X configuration.

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.2E.1.1 and 6.2E.1.2. The requirements in this test case can be well covered in clause 6.2.3G of TS 36.521-1 [10] and clause 6.2E.2 of TS 38.521-1 [8] and don't need to be tested again.

## 6.2E.2.2 UE maximum output power reduction for Inter-band V2X

## 6.2E.2.2.1 UE maximum output power reduction for Inter-band V2X with E-UTRA Uu and NR Sidelink

#### Editor's note:

- Connection diagram is FFS
- Generic test procedure is FFS
- Message exception is FFS
- Test requirements are FFS

## 6.2E.2.2.1.1 Test purpose

Same test purpose as in clause 6.2E.2.1.1 in TS 38.521-1 [8].

## 6.2E.2.2.1.2 Test applicability

This test applies to all types of E-UTRA UE release 16 and forward supporting concurrent operation between E-UTRA Uu and NR sidelink.

#### 6.2E.2.2.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.2.0.2.

6.2E.2.2.1.4 Test description

#### 6.2E.2.2.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and test channel bandwidths based on NR operating bands specified in clause 5.3E.3, channel bandwidths and sub-carrier spacings for the NR sidelink carrier specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each E-UTRA-NR V2X band combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.2.2.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2 of TS 36.521-1 [10] for E-UTRA Uu carrier. The details of sidelink reference measurement channels (RMCs) are specified in A.7 of TS 38.521-1 [8] for NR V2X carrier. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521.1 [10] Annex C.2 for E-UTRA Uu carrier.

Table 6.2E.2.2.1.4.1-1: Test configuration table

	Initial Conditions						
	Environment as spec 3.508-1 [6] clause 4.		Normal, TL/VL, TL/VI	H, TH/VL, TH/VH			
Test Frequencies as specified in TS 36.508 [11] subclause 4.3.1 for E-UTRA carrier and TS 38.508-1 [6] clause 4.3.1 for NR carrier.				A Uu carrier and NR sic RA Uu carrier and NR si			
	nter-band V2X band ecified in clause 5.3			Ju carrier and NR sideli Ju carrier and NR sideli			
	SCS for the NR carri 3.521-1 [8] Table 5.3	•	15kHz				
			Test Parameters				
Test		E-UTRA Uu carri	r NR sidelink Carrier				
ID	Downlink	Uplink C	onfiguration	Modulation	PSCCH and PSSCH RB		
	Configuration	Modulation	RB allocation (Note 1)		allocation (Note 2)		
1	N/A	QPSK	Partial_Allocation	CP-OFDM 16QAM	Inner_Full		
2		QPSK	Full_Allocation	CP-OFDM 16QAM	Outer_Full		
3		16QAM	Partial_Allocation				
4 16QAM Full_Allocation CP-OFDM 256QAM Outer_Full							
	NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in current specification.  NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1E-1 in TS 38.521-1 [8].						

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, FFS for TE diagram and clause FFS for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The parameter settings for the V2X sidelink transmission over PC5 are pre-configured according to TS 38.508-1 [5] clause 4.10. Message content exceptions are defined in clause 6.2E.1.1.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0, and uplink signals according to TS 36.521-1 [10] Annex H for the E-UTRA cell.
- 4. The E-UTRA UL Reference Measurement channels and the V2X Reference Measurement Channel are set according to Table 6.2E.2.2.1.4.1-1.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in State FFS according to TS 36.508 [7] clause FFS. Message content exceptions are defined in clause 6.2E.2.2.1.4.3.

## 6.2E.2.2.1.4.2 Test procedure

- The SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the E-UTRA UL RMC according to Table 6.2E.2.2.1.4.1-1. The UE starts to perform the NR sidelink communication according to SL-PreconfigurationNR. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the E-UTRA UL and NR sidelink RMCs.
- 2. Send continuously uplink power control "up" commands in the uplink scheduling information to the UE to ensure that the UE transmits at PUMAX level. Configure the UE to transmit PSCCH and PSSCH with the PUMAX level of each test points.
- 3. Measure the mean power over all component carriers in the inter-band con-current V2X configuration. The period of measurement shall be at least continuous duration of one sub-frame (1ms).

## 6.2E.2.2.1.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6 for E-UTRA Uu carrier and TS 38.508-1 [6] clause 4.6.3 for NR sidelink carrier with the following exceptions:

**FFS** 

6.2E.2.2.1.5 Test requirement

**FFS** 

6.2E.2.2.2 UE maximum output power reduction for Inter-band V2X with NR Uu and E-UTRA V2X

#### Editor's note:

- Connection diagram is FFS
- Generic test procedure is FFS
- Message exception is FFS
- Test requirements are FFS

## 6.2E.2.2.2.1 Test purpose

Same test purpose as in clause 6.2E.2.1.1 in TS 38.521-1 [8].

#### 6.2E.2.2.2 Test applicability

This test applies to all types of NR UE release 16 and forward supporting concurrent operation between NR Uu and E-UTRA V2X.

## 6.2E.2.2.2.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 6.2E.2.0.2.

6.2E.2.2.2.4 Test description

#### 6.2E.2.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and test channel bandwidths based on NR operating bands specified in clause 5.3E.3, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA V2X carrier are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each E-UTRA-NR

V2X band combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.2E.2.2.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2 of TS 38.521-1 [8] for NR Uu carrier. The details of sidelink reference measurement channels (RMCs) are specified in Annex A.6 of TS 36.521-1 [10] for E-UTRA V2X carrier. Configurations of PDSCH and PDCCH before measurement are specified in TS 38.521-1 [8] Annex C.2 for NR Uu carrier.

Table 6.2E.2.2.4.1-1: Test configuration table

Initial Conditions						
Test Environment as specified in TS 38.508-1 [6] clause 4.1.			Normal, TL/VL, TL/VH, TH/VL, TH/VH			
Test Frequencies as specified in TS 36.508 [11] subclause 4.3.1 for E-UTRA carrier and TS 38.508-1 [6] clause 4.3.1 for NR carrier.			Low range for NR Uu carrier and E-UTRA sidelink carrier High range for NR Uu carrier and E-UTRA sidelink carrier			
Test inter-band V2X bandwidth combination as			Lowest for NR Uu carrier and E-UTRA sidelink carrier			
specified in clause 5.3E.3.			Highest for NR Uu carrier and E-UTRA sidelink carrier			
Test SCS for the NR carrier as specified in TS 38.521-1 [8] Table 5.3.5-1.			15kHz			
Test Parameters						
Test	NR Uu Carrier			E-UTRA V2X Carrier		
ID	Downlink	Uplink Configu			PSSCH RB allocation	
	Configuration	Modulation	RB allocation (Note 1)			
1	N/A	DFT-s-OFDM QPSK	Inner_Full	QPSK	48@2 for 10MHz BW 96@2 for 20MHz BW	
2		DFT-s-OFDM QPSK	Outer_Full	QPSK	48@2 for 10MHz BW 96@2 for 20MHz BW	
3		DFT-s-OFDM 16QAM	Inner_Full	QPSK	48@2 for 10MHz BW 96@2 for 20MHz BW	
4		DFT-s-OFDM 16QAM	Outer_Full	QPSK	48@2 for 10MHz BW 96@2 for 20MHz BW	
5		DFT-s-OFDM 64QAM	Outer_Full	QPSK	48@2 for 10MHz BW 96@2 for 20MHz BW	
6		DFT-s-OFDM 256QAM	Outer_Full	QPSK	48@2 for 10MHz BW 96@2 for 20MHz BW	
7		CP-OFDM QPSK	Inner_Full	16QAM	48@2 for 10MHz BW 96@2 for 20MHz BW	
8		CP-OFDM 16PSK	Inner_Full	16QAM	48@2 for 10MHz BW 96@2 for 20MHz BW	
9		CP-OFDM 16PSK	Outer_Full	16QAM	48@2 for 10MHz BW 96@2 for 20MHz BW	
10		CP-OFDM 64PSK	Outer_Full	16QAM	48@2 for 10MHz BW 96@2 for 20MHz BW	
11		CP-OFDM 256PSK	Outer_Full	16QAM	48@2 for 10MHz BW 96@2 for 20MHz BW	
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1E-1 in TS 38.521-1 [8].						

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, FFS for TE diagram and clause FFS for UE diagram.
- 2. The parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3. The parameter settings for the E-UTRA V2X sidelink transmission are pre-configured according to TS 38.508-1 [5] subclause 4.10. Message content exceptions are defined in clause 6.2E.1.1.4.3.
- 3. Downlink signals are initially set up according to TS 38.521-1 [8] Annex C.0, and uplink signals according to TS 38.521-1 [8] Annex G for the NR cell.
- 4. The NR UL Reference Measurement channels and the E-UTRA V2X Reference Measurement Channel are set according to Table 6.2E.2.2.4.1-1.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 8. Ensure the UE is in state FFS according to TS 38.508-1 [6] clause FFS. Message contents are defined in clause 6.2E.2.2.2.4.3.

#### 6.2E.2.2.4.2 Test procedure

- The SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the NR UL RMC according to Table 6.2E.2.2.2.4.1-1 on NR CC. The UE starts to perform the E-UTRA V2X sidelink communication according to SL-V2X-Preconfiguration. Since the UL has no payload and no loopback data to send, the UE transmits uplink MAC padding bits on the NR UL and E-UTRA V2X sidelink RMC.
- 2. Send continuously uplink power control "up" commands to the UE until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command starting in this step for the UE to reach  $P_{UMAX}$  level.
- 3. Measure the mean power over all component carriers in the inter-band con-current V2X configuration. The period of the measurement shall be at least the continuous duration of one active sub-frame (1ms). For TDD slots with transient periods are not under test.
- NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration table 6.2E.2.2.2.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

## 6.2E.2.2.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1 for NR Uu carrier and TS 36.508 [11] clause 4.6 for E-UTRA V2X sidelink carrier with the following exceptions:

**FFS** 

6.2E.2.2.5 Test requirement

**FFS** 

## 6.3 Output power dynamics

## 6.3A Output Power Dynamics for CA without EN-DC

## 6.3A.1 UE Output Power Dynamics for CA

## 6.3A.1.1 UE Output Power Dynamics for NR CA between FR 1 and FR 2 without EN-DC

## 6.3A.1.1.1 Test purpose

Same test purpose as in clause 6.3 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.3 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.3A.1.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for maximum output power apply and are tested in TS 38.521-1 [8] clauses 6.3 and 6.2A and TS 38.521-2 [9] clauses 6.3 and 6.3A.

RB allocation

25

**QPSK** 

## 6.3B Output power dynamics for DC

## 6.3B.1 Minimum Output Power for EN-DC

## 6.3B.1.1 Minimum Output Power for intra-band contiguous EN-DC

## 6.3B.1.1.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.1.1.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

## 6.3B.1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-1 [8] for the NR carrier.

Same minimum conformance requirements as in clause 6.3.2.3 in TS 36.521-1 [10] for E-UTRA carrier.

For intra-band contiguous EN-DC operation in FR1, minimum output power requirements specified in clause 6.3.1 of TS 38.101-1 [2] and clause 6.3.2 of TS 36.101 [5] shall only apply when the power of all NR and E-UTRA carriers are set to minimum value.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

MidRange

#### 6.3B.1.1.4 Test description

5 MHz

Same test descriptions as in clause 6.3.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

Table 6.3B.1.1.4-1: Test configuration table

For Initial conditions as in clause 6.3.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 6.3B.1.1.4-1.
- 3.1. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0.
- 4.1. The UL Reference Measurement channels are set according to Table 6.3B.1.1.4-1.

NOTE 1: E-UTRA Test Frequency as specified in TS 36.508 [11] clause 4.3.1

Step 6 of Initial conditions as in clause 6.3.1.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3.1.4.2 in TS 38.521-1 [8] with the following steps added for E-UTRA component:

- 1.1. For E-UTRA component, SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to table 6.3B.1.1.4-1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2.1. For E-UTRA component, send continuously uplink power control "down" commands in every uplink scheduling information to the UE.

## 6.3B.1.1.5 Test requirements

Same test requirement as in clause 6.3.1.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.1.2 Minimum output power for intra-band non-contiguous EN-DC

## 6.3B.1.2.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.1.2.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.3B.1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.3.

## 6.3B.1.2.4 Test description

Same test descriptions as in clause 6.3.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

Table 6.3B.1.2.4-1: Test Configuration Table

Initial Conditions					
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes	Low with maxWGap, High with maxWGap				
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (NOTE 1)				
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB_agg , only the combination with the lowest NRB_SCG and highest NRB_SCG are tested for Lowest NRB_agg, and Highest NRB_agg, respectively.					

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 6.3B.1.2.4-1.

For Initial conditions as in clause 6.3.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 6.3B.1.2.4-1.
- 3.1. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C, clauses C.0, C.1 and C.3.0, and uplink signals according to Annex H, clauses H.1 and H.3.0.
- 4.1. The UL Reference Measurement channels are set according to Table 6.3B.1.2.4-1.

Step 6 of Initial conditions as in clause 6.3.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 6.3B.1.2.5 Test requirements

Same test requirement as in clause 6.3.1.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.1.3 Minimum output power for inter-band EN-DC within FR1 (1 NR CC)

## 6.3B.1.3.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

#### 6.3B.1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

#### 6.3B.1.3.4 Test description

Same test descriptions as in clause 6.3.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 6.3B.1.3.5 Test requirements

Same test requirement as in clause 6.3.1.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.1.4 Minimum Output Power for EN-DC Interband including FR2 (1 NR CC)

Editor's note: The following aspects of the clause are for future consideration:

- Testing of extreme conditions for FR2 is FFS.
- Measurement Uncertainties and Test Tolerances are FFS for power class 1, 2 and 4.

## 6.3B.1.4.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.3B.1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3B.1.

#### 6.3B.1.4.4 Test description

Same test description as in clause 6.3.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 6.3.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of initial conditions as in clause 6.3.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.3B.1.4.5 Test requirements

Same test requirement as in clause 6.3.1.5 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1 Minimum output power for inter-band EN-DC including FR2 (>1 NR CC)

## 6.3B.1.4\_1.1 Minimum output power for inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

The referred test case 6.3A.1.1 in TS 38.521-2 [9] is incomplete for NR aggregated channel bandwidth wider than 400MHz and power classes 1, 2, 4.

## 6.3B.1.4\_1.1.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

## 6.3B.1.4\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3B.

## 6.3B.1.4\_1.1.4 Test description

#### 6.3B.1.4 1.1.4.1 Initial condition

Same test description as in clause 6.3A.1.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.3A.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3A.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3A.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.1.4\_1.1.5 Test Requirements

Same test requirement as in clause 6.3A.1.1.5 in TS 38.521-2 [9] for the NR carrier.

#### 6.3B.1.4\_1.2 Minimum output power for inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

The referred test case 6.3A.1.2 in TS 38.521-2 [9] is incomplete for NR aggregated channel bandwidth wider than 400MHz and power classes 1, 2, 4.

#### 6.3B.1.4 1.2.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

#### 6.3B.1.4\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3B.

6.3B.1.4\_1.2.4 Test description

## 6.3B.1.4\_1.2.4.1 Initial condition

Same test description as in clause 6.3A.1.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.3A.1.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3A.1.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3A.1.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.1.4\_1.2.5 Test Requirements

Same test requirement as in clause 6.3A.1.2.5 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1.3 Minimum output power for inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

The referred test case 6.3A.1.3 in TS 38.521-2 [9] is incomplete for NR aggregated channel bandwidth wider than 400MHz and power classes 1, 2, 4.

#### 6.3B.1.4 1.3.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

## 6.3B.1.4\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.3B.1.4\_1.3.4 Test description

### 6.3B.1.4\_1.3.4.1 Initial condition

Same test description as in clause 6.3A.1.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.3A.1.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3A.1.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3A.1.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.1.4\_1.3.5 Test Requirements

Same test requirement as in clause 6.3A.1.3.5 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1.4 Minimum output power for inter-band EN-DC including FR2 (5 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.3A.1.3 in TS 38.521-2 [9] is incomplete for NR aggregated channel bandwidth wider than 400MHz and power classes 1, 2, 4.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.3B.1.4\_1.4.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.3B.1.4 1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5 NR UL CCs.

#### 6.3B.1.4 1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.3B.1.4\_1.4.4 Test description

### 6.3B.1.4\_1.4.4.1 Initial condition

Same test description as in clause 6.3A.1.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.3A.1.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3A.1.4.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3A.1.4.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.1.4\_1.4.5 Test Requirements

Same test requirement as in clause 6.3A.1.4.5 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1.5 Minimum output power for inter-band EN-DC including FR2 (6 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.3A.1.3 in TS 38.521-2 [9] is incomplete for NR aggregated channel bandwidth wider than 400MHz and power classes 1, 2, 4.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.3B.1.4\_1.5.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.3B.1.4 1.5.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 6 NR UL CCs.

#### 6.3B.1.4 1.5.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

6.3B.1.4\_1.5.4 Test description

### 6.3B.1.4\_1.5.4.1 Initial condition

Same test description as in clause 6.3A.1.5.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.3A.1.5.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3A.1.5.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3A.1.5.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.1.4\_1.5.5 Test Requirements

Same test requirement as in clause 6.3A.1.5.5 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1.6 Minimum output power for inter-band EN-DC including FR2 (7 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.3A.1.3 in TS 38.521-2 [9] is incomplete for NR aggregated channel bandwidth wider than 400MHz and power classes 1, 2, 4.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.3B.1.4\_1.6.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.3B.1.4 1.6.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 7 NR UL CCs.

#### 6.3B.1.4 1.6.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

6.3B.1.4\_1.6.4 Test description

### 6.3B.1.4\_1.6.4.1 Initial condition

Same test description as in clause 6.3A.1.6.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.3A.1.6.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3A.1.6.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3A.1.6.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.1.4\_1.6.5 Test Requirements

Same test requirement as in clause 6.3A.1.6.5 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4\_1.7 Minimum output power for inter-band EN-DC including FR2 (8 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.3A.1.3 in TS 38.521-2 [9] is incomplete for NR aggregated channel bandwidth wider than 400MHz and power classes 1, 2, 4.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.3B.1.4\_1.7.1 Test purpose

Same test purpose as in clause 6.3.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.3B.1.4 1.7.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 8 NR UL CCs.

#### 6.3B.1.4 1.7.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

6.3B.1.4\_1.7.4 Test description

6.3B.1.4\_1.7.4.1 Initial condition

Same test description as in clause 6.3A.1.7.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.3A.1.7.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3A.1.7.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3A.1.7.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.1.4\_1.7.5 Test Requirements

Same test requirement as in clause 6.3A.1.7.5 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4D Minimum output power for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.3D.1 in TS 38.521-2 [9] is incomplete

## 6.3B.1.4D.1 Test purpose

Same test purpose as in clause 6.3D.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.1.4D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC FR2.

#### 6.3B.1.4D.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3D.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.3B.

## 6.3B.1.4D.4 Test Description

Same test description as in clause 6.3D.1.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.7-1.

For Initial conditions as in clause 6.3D.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3D.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.

Same Test procedure as in clause 6.3D.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.1.4D.5 Test Requirement

Same test requirement as specified in clause 6.3D.1.5 of TS 38.521-2 [9] for the NR carrier(s).

## 6.3B.2 Transmit OFF Power for EN-DC

## 6.3B.2.1 Transmit OFF Power for intra-band contiguous EN-DC

#### 6.3B.2.1.1 Test purpose

Same test purpose as in clause 6.3.2.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.3B.2.1.2 Test applicability

The requirements of this test apply in Clause 6.3B.3 Tx ON/OFF time mask/PUCCH time mask to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

## 6.3B.2.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.2.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

## 6.3B.2.1.4 Test description

This test is covered by Clause 6.3B.3 Tx ON/OFF time mask/PUCCH time mask for EN-DC.

## 6.3B.2.1.5 Test requirements

Same test requirement as in clause 6.3.2.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.2.2 Transmit OFF Power for intra-band non-contiguous EN-DC

## 6.3B.2.2.1 Test purpose

Same test purpose as in clause 6.3.2.1 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.2.2.2 Test applicability

The requirements of this test apply in clause 6.3B.3 Tx ON/OFF time mask/PUCCH time mask to all types of E-UTRA UE Release 15 and forward, supporting intra-band non-contiguous EN-DC.

## 6.3B.2.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.2.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

## 6.3B.2.2.4 Test description

This test is covered by Clause 6.3B.3 Tx ON/OFF time mask/PUCCH time mask for EN-DC.

## 6.3B.2.2.5 Test requirements

Same test requirement as in clause 6.3.2.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.2.3 Transmit OFF Power for inter-band EN-DC within FR1 (1 NR CC)

## 6.3B.2.3.1 Test purpose

Same test purpose as in clause 6.3.2.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.3B.2.3.2 Test applicability

The requirements of this test apply in Clause 6.3B.3.3 Tx ON/OFF time mask/PUCCH time mask to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

## 6.3B.2.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.2.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

#### 6.3B.2.3.4 Test description

This test is covered by Clause 6.3B.3 Tx ON/OFF time mask/PUCCH time mask for EN-DC.

#### 6.3B.2.3.5 Test requirements

Same test requirement as in clause 6.3.2.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.2.4 Transmit OFF Power for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: This test case is complete for Band n257. Following aspects are either missing or not yet determined:

- The referred test case 6.3.2 in TS 38.521-2 [9] is incomplete for other than band n257.
- Measurement Uncertainties and Test Tolerances are FFS for power class 1 FR2b, 2 and 4.

#### 6.3B.2.4.1 Test purpose

Same test purpose as in clause 6.3.2.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.2.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

## 6.3B.2.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

## 6.3B.2.4.4 Test description

Same test description as in clause 6.3.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.3.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.3B.2.4.5 Test requirements

Same test requirement as in clause 6.3.2.5 in TS 38.521-2 [8] for the NR carrier.

## 6.3B.2.4 1 Void

## 6.3B.2.4D Transmit OFF Power for inter-band EN-DC including FR2 for UL-MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.3D.2 in TS 38.521-2 [9] is incomplete

#### 6.3B.2.4D.1 Test purpose

Same test purpose as in clause 6.3D.2.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.2.4D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 for UL-MIMO.

#### 6.3B.2.4D.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3D.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.3B.

#### 6.3B.2.4D.4 Test Description

Same test description as in clause 6.3D.2.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.7-1.

For Initial conditions as in clause 6.3D.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3D.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.

Same Test procedure as in clause 6.3D.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.2.4D.5 Test Requirement

Same test requirement as specified in clause 6.3D.2.5 of TS 38.521-2 [9] for the NR carrier(s).

## 6.3B.3 Transmit ON/OFF time mask/PUCCH time mask for EN-DC

## 6.3B.3.1 Transmit ON/OFF time mask for intra-band contiguous EN-DC

## 6.3B.3.1.1 Test purpose

Same test purpose as in clause 6.3.3.2.1 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.3.1.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

## 6.3B.3.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.3.2.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

## 6.3B.3.1.4 Test description

Same test descriptions as in clause 6.3.3.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.3.3.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA Downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.3.2.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, *Connected without release On* according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3.3.2.4.2 in TS 38.521-1 [8] with the following steps added for E-UTRA component:

1.1. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 6.3B.3.1.5 Test requirements

Same test requirement as in clause 6.3.3.2.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.3.2 Transmit ON/OFF time mask for intra-band non-contiguous EN-DC

## 6.3B.3.2.1 Test purpose

Same test purpose as in clause 6.3.3.2.1 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.3.2.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

## 6.3B.3.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.3.2.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

## 6.3B.3.2.4 Test description

Same test descriptions as in clause 6.3.3.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.3.3.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA Downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.3.2.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, *Connected without release On* according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3.3.2.4.2 in TS 38.521-1 [8] with the following steps added for E-UTRA component:

1.1. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 6.3B.3.2.5 Test requirements

Same test requirement as in clause 6.3.3.2.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.3.3 Transmit ON/OFF time mask for inter-band EN-DC within FR1 (1 NR CC)

## 6.3B.3.3.1 Test purpose

Same test purpose as in clause 6.3.3.2.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.3B.3.3.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

#### 6.3B.3.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.3.2.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

#### 6.3B.3.3.4 Test description

Same test descriptions as in clause 6.3.3.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.3.3.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA Downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.3.2.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, *Connected without release On* according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3.3.2.4.2 in TS 38.521-1 [8] with the following steps added for E-UTRA component:

1.1. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 6.3B.3.3.5 Test requirements

Same test requirement as in clause 6.3.3.2.5 in TS 38.521-1 [8] for the NR carrier.

## 6.3B.3.4 Transmit ON/OFF time mask for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.3.3.2 in TS 38.521-2 [9] is incomplete for power class 1, 2 and 4.
- The referred test case 6.3.3.2 in TS 38.521-2 [9] is incomplete for band n259.

## 6.3B.3.4.1 Test purpose

Same test purpose as in clause 6.3.3.2.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.3.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC FR2 with 1 NR UL CC.

## 6.3B.3.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.3.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.3B.

## 6.3B.3.4.4 Test Description

Same test description as in clause 6.3.3.2.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.7-1.

For Initial conditions as in clause 6.3.3.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.3.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.

Same Test procedure as in clause 6.3.3.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.3.4.5 Test Requirement

Same test requirement as specified in clause 6.3.3.2.5 of TS 38.521-2 [9] for the NR carrier(s).

# 6.3B.3.4D Transmit ON/OFF time mask for inter-band EN-DC including FR2 for UL-MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.3D.3 in TS 38.521-2 [9] is incomplete

#### 6.3B.3.4D.1 Test purpose

Same test purpose as in clause 6.3D.3.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.3B.3.4D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC FR2.

## 6.3B.3.4D.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3D.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.3B.

#### 6.3B.3.4D.4 Test Description

Same test description as in clause 6.3D.3.1.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.7-1.

For Initial conditions as in clause 6.3D.3.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3D.3.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.

Same Test procedure as in clause 6.3D.3.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.3B.3.4D.5 Test Requirement

Same test requirement as specified in TS 38.521-2 [9] clause 6.3D.3.1.5 for the NR carrier(s).

# 6.3B.3\_1E-UTRA and NR switching time mask for switching between two uplink carriers

# 6.3B.3\_1.1 E-UTRA and NR switching time mask for switching between two uplink carriers for inter-band EN-DC

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The test procedure needs further discussion.
- The test clause number needs further discussion.
- The test requirement for the E-UTRA carrier and the NR carrier is FFS.

## 6.3B.3\_1.1.1 Test purpose

To verify that the E-UTRA and NR switching time mask for switching between two uplink carriers for inter-band EN-DC meets the requirements given in 6.3B.4.1 in TS 38.101-3 [4].

The E-UTRA and NR switching time mask for switching between two uplink carriers for inter-band EN-DC defines the transient period(s) and the switching period allowed between two uplink carriers for an uplink band pair of an inter-band EN-DC configuration when the capability *uplinkTxSwitchingPeriod* is present.

## 6.3B.3\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 16 and forward, supporting 2UL inter-band EN-DC and dynamic UL Tx switching.

## 6.3B.3\_1.1.3 Minimum conformance requirements

In addition to the requirements in 6.3B.0 and the maximum output power requirement specified in Table 6.2B.1.3-1 with inter-band EN-DC (two bands), the switching time mask specified in this sub-clause is applicable for an uplink band pair of an inter-band EN-DC configuration without SUL band when the capability *uplinkTxSwitchingPeriod* is present, and is only applicable for uplink switching mechanisms specified in sub-clause 6.1.6 of TS 38.214 [14], where E-UTRA UL carrier 1 is capable of one transmit antenna connector and NR UL carrier 2 is capable of two transmit antenna connectors, and the two uplink carriers are in different bands with different carrier frequencies. The UE shall support the switch between single layer transmission with one antenna port and two-layer transmission with two antenna ports on the two uplink carriers following the scheduling commands and rank adaptation, i.e., both single layer and two-layer transmission with 2 antenna ports, and single layer transmission with 1 antenna port shall be supported on NR UL carrier 2.

The switching periods described in Figure 6.3B.4.1-1 are only located in NR carrier, and the length of uplink switching period *X* is less than the value indicated by UE capability *uplinkTxSwitchingPeriod*.

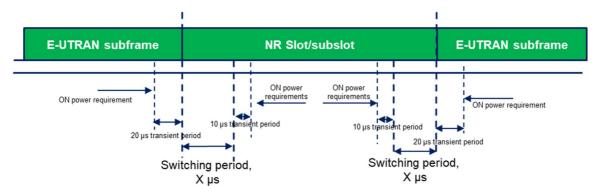


Figure 6.3B.4.1-1: Time mask for switching between E-UTRA UL carrier and NR UL carrier, where the switching period is located in NR carrier

The requirements apply for the case of co-located and synchronized network deployment with the max receiving timing difference of 3us between the two carriers.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3B.4.1 for the NR and the E-UTRA carrier.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied.

6.3B.3\_1.1.4 Test description

6.3B.3 1.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2, and are shown in table 6.3B.3\_1.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annex A, clause A.2.3 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A, clause A.2.2 for E-UTRA RMC for FDD, and TS 38.521-1 [8] Annex A, clause A.2 for NR RMC. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C, clause C.2 and in TS 38.521-1 [8] Annex C, clause C.2 for E-UTRA CG and NR CG respectively.

Table 6.3B.3\_1.1.4.1-1: Test configuration table for Inter-band EN-DC Uplink switching

	Initial Conditions						
	nt as specified in	Normal					
TS 38.508-1 [5]							
NR Test Freque	ncies as specified in	Mid range for E-	UTRA CC1 and	NR CC1 (NOTE	3)		
TS 38.508-1 [5]	clause 4.3.1						
E-UTRA Test Fr	equencies as specified in						
TS 36.508-1 [11	] clause 4.3.1						
Test EN-DC ban	dwidth combination as	Highest for E-U7	RA CC1 and N	R CC1			
specified in TS 3	38.508-1 [5] clause 4.3.1						
NR Test SCS as	s specified in Table 5.3.5-	Highest					
1 in TS 38.521-1	l [8]						
	NR/I	E-UTRA Test Para	ameters				
Test ID	Downlink	EN-DC Uplink Configuration					
	Configuration	E-UTR	A Cell	NR	Cell		
		Modulation	RB	Modulation	RB		
			allocation		allocation		
			(NOTE 2)		(NOTE 1)		
1	N/A	QPSK	Outer Full	CP-OFDM	Outer Full		
				QPSK			
NOTE 1: The s	pecific configuration of eac	h RB allocation is	defined in Table	e 6.1-1 in TS 38.	521-1 [8].		
NOTE 2: The specific configuration of each RB allocation is defined in Table 6.1-1 in current specification.							
NOTE 3: For N	R band n28, 30MHz test cl	hannel bandwidth	is tested with Lo	w range test fre	quency.		

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.2 for TE
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. NR downlink signals are initially set up according to Annex C.0, C.1, and C.2 and uplink signals according to Annex G.0, G.1, G.2, and G.3.0 of TS 38.521-1 [8].
- 5. The UL Reference Measurement Channel is set according to Table 6.3A.3.1\_1.4.1-1 for E-UTRA CG and NR CG respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.3A.3.1 1.4.3 in TS 38.521-1 [8] for the NR CG.

#### 6.3B.3\_1.1.4.2 Test procedure

diagram and clause A.3.2 for UE diagram.

Carrier 1 and Carrier 2 refers to the E-UTRA component and the NR carrier respectively

- 1. Configure Carrier 2 according to Annex C.0, C.1, C.2 for all downlink physical channels.
- 2. The SS shall configure Carrier 2 as per TS 38.508-1 [5] clause 5.5.1. Message contents are defined in clause 6.3A.3.1\_1.4.3 in TS 38.521-1 [8] for the NR Carrier 2.
- 3. SS activates Carrier 2 by sending the activation MAC CE (Refer TS 38.321 [18], clauses 5.9, 6.1.3.10). Wait for at least 2 seconds (Refer TS 38.133 [19], clause 9.3).
- 4. For Carrier 1, SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to table 6.3B.1.1.4-1 on E-UTRA subframe n-1, where E-UTRA subframe n is an uplink slot for Carrier 2 and n-1  $\geq$  20 when SCS=15 kHz (n-1  $\geq$  40 when SCS=30 kHz, n-1  $\geq$  80 when SCS=60 kHz). Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

- 5. The SS sends uplink scheduling information via DCI format  $0\_1$  with TPC command 0dB for C\_RNTI to schedule the UL RMC according to Table  $6.3A.3.1\_1.4.1-1$  in TS 38.521-1 [8] on Carrier 2 on slot n (n  $\geq$ 1) and slot m, with both slot n and slot m being uplink slots for Carrier 2 and  $m \geq n+20$  when SCS=15kHz ( $m \geq n+40$  when SCS=30 kHz,  $m \geq n+80$  when SCS=60 kHz). Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC. The PDCCH DCI format  $0\_1$  is specified with the condition  $2TX\_UL\_MIMO$  in TS 38.508-1 [5] subclause 4.3.6.1.1.2.
- 6. Measure the output power of UE PUSCH transmission for Carrier 1 during the E-UTRA subframe n-1, for Carrier 1 excluding a transient period of 20 µs in the end of the E-UTRA subframe n-1.
- 7. Measure the sum of output power of UE PUSCH transmission on Carrier 2 over all antenna connectors during slot n and slot m excluding a switching period X and a transient period of 10 µs in the beginning of slot n and in the end of slot m. The length of uplink switching period X is indicated by UE capability *uplinkTxSwitchingPeriod*.
- 8. For Carrier 1, SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to table 6.3B.1.1.4-1 on E-UTRA subframe m+1. Since the UE has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 9. Measure the output power of UE PUSCH transmission for Carrier 1 during slot m+1 excluding a transient period of 20 µs in the beginning of slot m+1.

#### 6.3B.3\_1.1.5 Test requirements

FFS on the test requirement for the NR carrier.

FFS on the test requirement for the E-UTRA carrier.

# 6.3B.4 PRACH time mask for EN-DC

# 6.3B.4.1 PRACH time mask for intra-band contiguous EN-DC

#### 6.3B.4.1.1 Test purpose

Same test purpose as in clause 6.3.3.4.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.3B.4.1.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

#### 6.3B.4.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.3.4.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.3B.4.1.4 Test description

Same test description as in clause 6.3.3.4.4 in TS 38.521-1 [8] with the following exception:

#### Table 6.3B.4.1.4-1: Test Configuration Table

Initial Conditions						
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different DC bandwidth classes.  Mid range						
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest NRB_agg (NOTE 1)					
NOTE 1: If the UE supports multiple CC Combinations the combination with the highest NRB SCG is	NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB_agg , only					

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 6.3B.4.1.4-1.

For Initial conditions as in clause 6.3.3.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 5 of Initial conditions as in clause 6.3.3.4.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 5. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 6. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

For Message contents as in clause 6.3.3.4.4.3 in TS 38.521-1 [8], the following exception:

Table 6.3B.4.1.4-2: RACH-ConfigGeneric: PRACH measurement

Derivation Path: TS 38.508-1[5], Table 4.6.3-130	)		
Information Element	Value/remark	Comment	Condition
RACH-ConfigGeneric ::= SEQUENCE {			
prach-ConfigurationIndex	14	Unpaired	PRACH
		Spectrum	Format 0
	128	Unpaired	PRACH
		Spectrum	Format A3

#### 6.3B.4.1.5 Test requirements

Same test requirement as in clause 6.3.3.4.5 in TS 38.521-1 [8].

# 6.3B.4.2 PRACH Time Mask for intra-band non-contiguous EN-DC

#### 6.3B.4.2.1 Test purpose

Same test purpose as in clause 6.3.3.4.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.3B.4.2.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.3B.4.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.3.4.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.4.2.4 Test description

Same test description as in clause 6.3.3.4.4 in TS 38.521-1 [8] with the following exception:

Table 6.3B.4.2.4-1: Test Configuration Table

Initial Conditions					
Test Frequencies as specified in TS 36TS 38.508-1 [76] clause 4.3.1 for different EN-DC bandwidth classes	MaxWGap				
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest NRB_agg (NOTE 1)				
NOTE 1: If the UE supports multiple CC Combinations in the combination with the highest NRB SCG is	= 55 / ,				

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 6.3B.4.2.4-1.

For Initial conditions as in clause 6.3.3.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 5 of Initial conditions as in clause 6.3.3.4.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 5. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 6. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.For Message contents as in clause 6.3.3.4.4.3 in TS 38.521-1 [8], the following exception:

Table 6.3B.4.2.4-2: RACH-ConfigGeneric: PRACH measurement

Derivation Path: TS 38.508-1[5], Table 4.6.3-130							
Information Element	Value/remark	Comment	Condition				
RACH-ConfigGeneric ::= SEQUENCE {							
prach-ConfigurationIndex	14	Unpaired	PRACH				
•		Spectrum	Format 0				
	128	Unpaired	PRACH				
		Spectrum	Format A3				

#### 6.3B.4.2.5 Test requirements

Same test requirement as in clause 6.3.3.4.5 in TS 38.521-1 [8].

# 6.3B.4.3 PRACH Time Mask for inter-band EN-DC within FR1 (1 NR CC)

#### 6.3B.4.3.1 Test purpose

Same test purpose as in clause 6.3.3.4.1 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.4.3.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

#### 6.3B.4.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.3.4.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.4.3.4 Test description

Same test description as in clause 6.3.3.4.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.For Initial conditions as in clause 6.3.3.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 5 of Initial conditions as in clause 6.3.3.4.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 5. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 6. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test requirement as in clause 6.3.3.4.5 in TS 38.521-1 [8].

# 6.3B.4.4 PRACH Time Mask for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.3.3.4 in TS 38.521-2 [9] is incomplete

#### 6.3B.4.4.1 Test purpose

Same test purpose as in clause 6.3.3.4.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.3B.4.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2.

# 6.3B.4.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.3.4.3 in TS 38.521-2 [9] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

#### 6.3B.4.4.4 Test description

Same test description as in clause 6.3.3.4.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.7-1.

For Initial conditions as in clause 6.3.3.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 5 of Initial conditions as in clause 6.3.3.4.4.1 in TS 38.521-2 [9] is replaced by the following two steps:

- 5. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 6. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.3B.4.4.5 Test requirement

Same test requirement as specified in clause 6.3.3.4.5 of TS 38.521-2 [9] for the NR carrier(s).

# 6.3B.5 Output power dynamics for EN-DC with UL sharing from UE perspective

# 6.3B.5.1 E-UTRA and NR switching time mask for TDM based UL sharing from UE perspective

No test case details are specified. Current test procedures for time masks are based on power measurement in relatively long period compared with transient period. For time masks between 2 active time slots with different power level, the test procedure can't provide enough resolution to identify non-conformant UEs. Therefore the minimum requirement is not testable.

# 6.3B.6 Output power dynamics for intra-band EN-DC without dual PA capability

No test case details are specified. Current test procedures for time masks are based on power measurement in relatively long period compared with transient period. For time masks between 2 active time slots with different power level, the test procedure can't provide enough resolution to identify non-conformant UEs. Therefore the minimum requirement is not testable.

# 6.3B.7 Output power dynamics for intra-band EN-DC with dual PA capability

No test case details are specified. Current test procedures for time masks are based on power measurement in relatively long period compared with transient period. For time masks between 2 active time slots with different power level, the test procedure can't provide enough resolution to identify non-conformant UEs. Therefore the minimum requirement is not testable.

#### 6.3B.8 Power control for EN-DC

# 6.3B.8.1 Absolute power tolerance for EN-DC

#### 6.3B.8.1.1 Absolute power tolerance for intra-band contiguous EN-DC

#### 6.3B.8.1.1.1 Test purpose

Same test purpose as in clause 6.3.4.2.1 in TS 38.521-1 [8] for the NR FR1 carrier(s),

#### 6.3B.8.1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

#### 6.3B.8.1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.2.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.8.1.1.4 Test description

Same test description as in clause 6.3.4.2.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.2.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.1.1.5 Test Requirement

Same test requirement as in clause 6.3.4.2.5 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.8.1.2 Absolute power tolerance for intra-band non-contiguous EN-DC

# 6.3B.8.1.2.1 Test purpose

Same test purpose as in clause 6.3.4.2.1 in TS 38.521-1 [8] for the NR FR1 carrier(s).

#### 6.3B.8.1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.3B.8.1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.2.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.8.1.2.4 Test description

Same test description as in clause 6.3.4.2.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.2.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.1.2.5 Test Requirement

Same test requirement as in clause 6.3.4.2.5 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.8.1.3 Absolute power tolerance for inter-band EN-DC within FR1 (1 NR CC)

#### 6.3B.8.1.3.1 Test purpose

Same test purpose as in clause 6.3.4.2.1 in TS 38.521-1 [8] for the NR FR1 carrier(s).

#### 6.3B.8.1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

#### 6.3B.8.1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.2.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.3B.8.1.3.4 Test description

Same test description as in clause 6.3.4.2.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.2.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.1.3.5 Test Requirement

Same test requirement as in clause 6.3.4.2.5 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.8.1.4 Absolute power tolerance for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.3.4.2 in TS 38.521-2 [9] is incomplete for extreme conditions.
- The referred test case 6.3.4.2 in TS 38.521-2 [9] is incomplete for PC 1, 2, and 4.

#### 6.3B.8.1.4.1 Test purpose

Same test purpose as in clause 6.3.4.2.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.3B.8.1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.3B.8.1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.8.1.4.4 Test description

Same test description as in clause 6.3.4.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.2.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.2.4.1 in TS 38.521-2 [9] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.1.4.5 Test Requirement

Same test requirement as in clause 6.3.4.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.3B.8.2 Relative power tolerance for EN-DC

#### 6.3B.8.2.1 Relative power tolerance for intra-band contiguous EN-DC

#### 6.3B.8.2.1.1 Test purpose

Same test purpose as in clause 6.3.4.3.1 in TS 38.521-1 [8] for the NR FR1 carrier(s).

#### 6.3B.8.2.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

#### 6.3B.8.2.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.3.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.3B.8.2.1.4 Test description

Same test description as in clause 6.3.4.3.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.3.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.2.1.5 Test Requirement

Same test requirement as in clause 6.3.4.3.5 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.8.2.2 Relative power tolerance for intra-band non-contiguous EN-DC

# 6.3B.8.2.2.1 Test purpose

Same test purpose as in clause 6.3.4.3.1 in TS 38.521-1 [8] for the NR FR1 carrier(s).

#### 6.3B.8.2.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.3B.8.2.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.3.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.8.2.2.4 Test description

Same test description as in clause 6.3.4.3.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.3.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.2.2.5 Test Requirement

Same test requirement as in clause 6.3.4.3.5 in TS 38.521-1 [8] for the NR carrier.

#### 6.3B.8.2.3 Relative power tolerance for inter-band EN-DC within FR1 (1 NR CC)

#### 6.3B.8.2.3.1 Test purpose

Same test purpose as in clause 6.3.4.3.1 in TS 38.521-1 [8] for the NR FR1 carrier(s).

#### 6.3B.8.2.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

#### 6.3B.8.2.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.3.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.3B.8.2.3.4 Test description

Same test description as in clause 6.3.4.3.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.3.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.2.3.5 Test Requirement

Same test requirement as in clause 6.3.4.3.5 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.8.2.4 Relative power tolerance for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.3.4.3 in TS 38.521-2 [9] is incomplete

#### 6.3B.8.2.4.1 Test purpose

Same test purpose as in clause 6.3.4.3.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.3B.8.2.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.3B.8.2.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.8.2.4.4 Test description

Same test description as in clause 6.3.4.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.3.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-2 [9] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.2.4.5 Test Requirement

Same test requirement as in clause 6.3.4.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.3B.8.3 Aggregate power tolerance for EN-DC

#### 6.3B.8.3.1 Aggregate power tolerance for intra-band contiguous EN-DC

#### 6.3B.8.3.1.1 Test purpose

Same test purpose as in clause 6.3.4.4.1 in TS 38.521-1 [8] for the NR FR1 carrier(s).

#### 6.3B.8.3.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

#### 6.3B.8.3.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.4.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.8.3.1.4 Test description

Same test description as in clause 6.3.4.4.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.3.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.3.1.5 Test Requirement

Same test requirement as in clause 6.3.4.4.5 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.8.3.2 Aggregate power tolerance for intra-band non-contiguous EN-DC

# 6.3B.8.3.2.1 Test purpose

Same test purpose as in clause 6.3.4.4.1 in TS 38.521-1 [8] for the NR FR1 carrier(s).

#### 6.3B.8.3.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.3B.8.3.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.4.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.8.3.2.4 Test description

Same test description as in clause 6.3.4.4.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.4.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.3.2.5 Test Requirement

Same test requirement as in clause 6.3.4.4.5 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.8.3.3 Aggregate power tolerance for inter-band EN-DC within FR1 (1 NR CC)

#### 6.3B.8.3.3.1 Test purpose

Same test purpose as in clause 6.3.4.4.1 in TS 38.521-1 [8] for the NR FR1 carrier(s).

#### 6.3B.8.3.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL CC.

#### 6.3B.8.3.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.4.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.3B.8.3.3.4 Test description

Same test description as in clause 6.3.4.4.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.4.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.3.3.5 Test Requirement

Same test requirement as in clause 6.3.4.4.5 in TS 38.521-1 [8] for the NR carrier.

# 6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

The referred test case 6.3.4.4 in TS 38.521-2 [9] is incomplete for PC 1, 2, and 4.

#### 6.3B.8.3.4.1 Test purpose

Same test purpose as in clause 6.3.4.4.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.3B.8.3.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.3B.8.3.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.3.4.4.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.3B.8.3.4.4 Test description

Same test description as in clause 6.3.4.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

Notes defined in Table 6.3.4.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.3.4.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.3.4.4.4.1 in TS 38.521-2 [9] is replaced by the following steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.3B.8.3.4.5 Test Requirement

Same test requirement as in clause 6.3.4.4.5 in TS 38.521-2 [9] for the NR carrier.

# 6.3E Output power dynamics for V2X

# 6.3E.0 Minimum conformance requirements

# 6.3E.0.1 General

The E-UTRA SL and NR SL switching time mask defines the observation period between E-UTRA subframe and NR slot/mini-slot boundary. Both E-UTRA subframe and NR slot/mini-slot have ON power transmissions. The ON power

is defined as the mean power over the symbol duration excluding any transient period. For E-UTRA subframe or NR slot/mini-slot having OFF power transmission, the general time mask for E-UTRA or NR shall apply.

#### 6.3E.0.2 Output power dynamics for intra-band V2X operation

For intra-band V2X operation bands specified in subclause 5.3E.1 and 5.3E.2, the SL switching time masks in Figure 6.3E.2-1 shall apply.

The switching time shall be located on the RAT of lower priority when NR SL and LTE SL have different priorities based on priority information specified in TS 38.213. It is up to UE implementation when NR SL and LTE SL have the same priority based on priority information specified in TS 38.213.

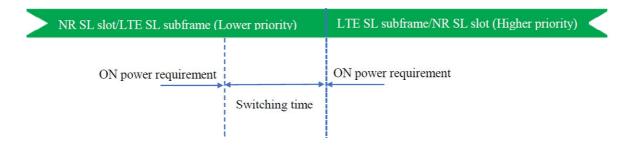


Figure 6.3E.0.2-1: Time mask for switching between NR SL and E-UTRA SL

#### 6.3E.0.3 Output power dynamics for inter-band V2X con-current operation

For inter-band con-current NR V2X operation, the output power dynamics requirement shall be applied per each component carrier. The output dynamic requirements specified in clause 6.3 of TS 36.101 [5] apply for E-UTRA UL transmission and the requirements specified in clause 6.3E of TS 38.101-1 [2] apply for NR SL transmission. The output dynamic requirements specified in clause 6.3.2G, 6.3.4G of TS 36.101 [5] apply for E-UTRA SL transmission and the requirements specified in clause 6.3 of TS 38.101-1 [2] apply for NR UL transmission.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.3E.

# 6.3E.1 Output power dynamics for intra-band V2X operation

SL switching time mask requirements are specified for intra-band V2X operation, giving criteria on how the switching period position is decided based on priority information. No test is needed for this time mask requirement.

# 6.3E.2 Output power dynamics for inter-band V2X operation

For inter-band V2X operation, no exception requirements are specified for the E-UTRA/NR Uu carrier and E-UTRA/NR SL carrier.

For inter-band V2X configuration with E-UTRA Uu and NR sidelink, the requirements in this test case can be well covered in clause 6.3.2, 6.3.3, 6.3.4 and 6.3.5 of TS 36.521-1 [10] for E-UTRA Uu carrier and clause 6.3E.1.1, [6.3E.2.2, 6.3E.3.2.1, 6.3E.3.3.1 and 6.3E.3.4.1] of TS 38.521-1 [8] and don't need to be tested again.

For inter-band V2X configuration with NU Uu and E-UTRA V2X sidelink, the requirements in this test case can be well covered in clause 6.3.1, 6.3.2, 6.3.3 and 6.3.4 of TS 38.521-1 [8] for NR Uu carrier and clause 6.3.2G.1, 6.3.3G.1, 6.3.4G.1 and 6.3.4G.4 of TS 36.521-1 [10] and don't need to be tested again.

# 6.4 Transmit signal quality

# 6.4A Transmit Signal Quality for inter-band NR CA between FR and FR2 without EN-DC

# 6.4A.1 Frequency error for inter-band NR CA between FR 1 and FR 2 without EN-DC

#### 6.4A.1.1 Test purpose

Same test purpose as in clause 6.4.1 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.4.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.4A.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for frequency error apply and are tested in TS 38.521-1 [8] clauses 6.4 and 6.4A and TS 38.521-2 [9] clauses 6.4 and 6.4A.

# 6.4A.2 Transmit Modulation Quality for inter-band NR CA without EN-DC

# 6.4A.2.1 Error Vector Magnitude for inter-band NR CA between FR 1 and FR 2 without EN-DC

# 6.4A.2.1.1 Test purpose

Same test purpose as in clause 6.4.2.1 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.4.2.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.4A.2.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for error vector magnitude apply and are tested in TS 38.521-1 [8] clauses 6.4 and 6.4A and TS 38.521-2 [9] clauses 6.4 and 6.4A.

# 6.4A.2.2 Carrier Leakage for inter-band NR CA between FR 1 and FR 2 without EN-DC

#### 6.4A.2.2.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.4.2.2 in TS 38.521-2 [9] for NR FR2 carrier(s).

# 6.4A.2.2.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for carrier leakage apply and are tested in TS 38.521-1 [8] clauses 6.4 and 6.4A and TS 38.521-2 [9] clauses 6.4 and 6.4A.

# 6.4A.2.3 In-band Emissions for inter-band NR CA between FR 1 and FR 2 without EN-DC

#### 6.4A.2.3.1 Test purpose

Same test purpose as in clause 6.4.2.3 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.4.2.3 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.4A.2.3.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for in-band emissions apply and are tested in TS 38.521-1 [8] clauses 6.4 and 6.4A and TS 38.521-2 [9] clauses 6.4 and 6.4A.

# 6.4A.2.4 EVM Equalizer Spectral Flatness for inter-band NR CA between FR 1 and FR 2 without EN-DC

#### 6.4A.2.4.1 Test purpose

Same test purpose as in clause 6.4.2.4 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.4.2.4 in TS 38.521-2 [9] for NR FR2 carrier(s).

## 6.4A.2.4.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for EVM equalizer spectral flatness apply and are tested in TS 38.521-1 [8] clauses 6.4 and 6.4A and TS 38.521-2 [9] clauses 6.4 and 6.4A.

# 6.4B Transmit Signal Quality for DC

# 6.4B.1 Frequency error

#### 6.4B.1.1 Frequency error for Intra-band contiguous EN-DC

#### 6.4B.1.1.1 Test purpose

Same test purpose as in clause 6.4.1 in TS 38.521-1 [8] for the NR carrier.

# 6.4B.1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

## 6.4B.1.1.3 Minimum conformance requirements

For intra-band contiguous EN-DC, the requirement shall apply on each component carrier as defined in clause 6.5.1 in TS 38.101-3 [4] and in clause 6.4.1 in TS 38.101-1 [2], respectively.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.4B.1.1.

#### 6.4B.1.1.4 Test description

Same test description as in clause 6.4.1.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Notes defined in Table 6.4.1.4.1-1 will be updated as below.

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.4.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.4B.1.1.5 Test Requirement

The 10 frequency error Δf results must fulfil the test requirement defined in clause 6.4.1.5 TS 38.521-1 [8].

# 6.4B.1.2 Frequency error for Intra-band non-contiguous EN-DC

# 6.4B.1.2.1 Test purpose

Same test purpose as in clause 6.4.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.4B.1.2.3 Minimum conformance requirements

For intra-band non-contiguous EN-DC, the requirement shall apply on each component carrier as defined in clause 6.5.1 in TS 38.101-3 [4] and in clause 6.4.1 in TS 38.101-1 [2], respectively.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.4B.1.2.

#### 6.4B.1.2.4 Test description

Same test description as in clause 6.4.1.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.3, all of these configurations shall be tested with applicable test parameters for each intra-band non-contiguous EN-DC configuration specified in clause 5.3B.1.3, and are shown in table 6.4B.1.2.4-1.

#### Table 6.4B.1.2.4-1: Test Configuration Table

Initial Conditions							
Test Environment as specified in TS 38.508-1 [6] clause 4.1			Normal,	TL/VL, TL/VH, TH/VL, T	'H/VH		
as specified in	Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes			o , MaxWgap			
Test Channel Bandwidths as specified in TS 38.508-1 [6] clause 4.3.1		Highest I	Highest N <sub>RB_agg</sub> (NOTE3)				
Test SCS as s	Test SCS as specified in Table 5.3.5-1						
				Parameters			
	Downlink (	Configuration	on Uplink Configuration				
Test ID	Modulation	RB allo	cation	Modulation	RB allocation		
1	CP-OFDM QPSK	Full RB (1	NOTE 1)	DFT-s-OFDM QPSK	REFSENS (NOTE 2)		
NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2.  NOTE 2: REFSENS refers to Table 7.3.2.4.1-3 which defines uplink RB configuration and start RB location for each SCS, channel BW and NR band.  NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB agg , only the							

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1 with the exception that E-UTRA test frequency are specified in Table 7.4B.2.4.1-1 based on intra-band non-contiguous EN-DC configuration specified in clause 5.3B.1.3.

For Initial conditions as in clause 6.4.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Steps 4 and 6 of Initial conditions as in clause 6.4.1.4.1 in TS 38.521-1 [8] is replaced by:

combination with the highest NRB\_SCG is tested.

- 4. The DL and UL Reference Measurement frequencies are set according to Table 6.4B.1.2.4-1.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.4B.1.2.5 Test Requirement

The 10 frequency error  $\Delta f$  results must fulfil the test requirement defined in TS 38.521-1 [8], clause 6.4.1.5.

# 6.4B.1.3 Frequency error for Inter-band EN-DC within FR1 (1 NR CC)

# 6.4B.1.3.1 Test purpose

Same test purpose as in clause 6.4.1 in TS 38.521-1 [8] for the NR carrier.

## 6.4B.1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

#### 6.4B.1.3.3 Minimum conformance requirements

For inter-band EN-DC with uplink assigned to one E-UTRA band and one NR band, the requirements shall apply on each component carrier as defined in clause 6.5.1 in TS 36.101 [5] and in clause 6.4.1 in TS 38.101-1 [2], respectively, with all component carriers active. If multiple component carriers are assigned to one E-UTRA band, the requirements in clauses 6.5.1A in TS 36.101 [5] apply for those component carriers, and if multiple component carriers are assigned to one NR band, the requirements in clauses 6.4A.1 in TS 38.101-1 [2] apply for those component carriers.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.4B.1.3.

#### 6.4B.1.3.4 Test description

Same test description as in clause 6.4.1.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.4.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.4B.1.3.5 Test Requirement

The 10 frequency error Δf results must fulfil the test requirement defined in 6.4.1.5 TS 38.521-1 [8].

# 6.4B.1.3a Frequency Error for inter-band NE-DC within FR1

No exception requirements applicable to E-UTRA or LTE.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 6.4.1 and 6.4A.1 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.5.1 and 6.5.1A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 6.4B.1.4 Frequency Error for inter-band EN-DC including FR2 (1 NR CC)

#### 6.4B.1.4.1 Test purpose

Same test purpose as in clause 6.4.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.1.4.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band EN-DC including FR2 with 1 NR UL CC.

#### 6.4B.1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.

#### 6.4B.1.4.4 Test description

Same test description as in clause 6.4.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 6.4.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.1.4.5 Test requirements

Same test requirement as in clause 6.4.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.1.4\_1 Frequency Error for Inter-band EN-DC including FR2 (>1 NR CC)

# 6.4B.1.4\_1.1 Frequency Error for Inter-band EN-DC including FR2 (2 NR CCs)

#### 6.4B.1.4\_1.1.1 Test purpose

Same test purpose as in clause 6.4.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.1.4 1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

#### 6.4B.1.4\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.1.4.

#### 6.4B.1.4\_1.1.4 Test description

# 6.4B.1.4 1.1.4.1 Initial condition

Same test description as in clause 6.4A.1.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.1.4\_1.1.5 Test Requirements

Same test requirement as in clause 6.4A.1.1.5 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.1.4\_1.2 Frequency Error for Inter-band EN-DC including FR2 (3 NR CCs)

#### 6.4B.1.4\_1.2.1 Test purpose

Same test purpose as in clause 6.4.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.1.4\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

# 6.4B.1.4\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.1.4.

#### 6.4B.1.4\_1.2.4 Test description

#### 6.4B.1.5.4\_1.2.1 Initial condition

Same test description as in clause 6.4A.1.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.1.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.1.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.1.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.1.4\_1.2.5 Test Requirements

Same test requirement as in clause 6.4A.1.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.1.4\_1.3 Frequency Error for Inter-band EN-DC including FR2 (4 NR CCs)

#### 6.4B.1.4\_1.3.1 Test purpose

Same test purpose as in clause 6.4.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.1.4 1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

### 6.4B.1.4\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.1.4.

#### 6.4B.1.4\_1.3.4 Test description

# 6.4B.1.4\_1.3.4.1 Initial condition

Same test description as in clause 6.4A.1.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.1.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.1.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.1.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.1.4\_1.3.5 Test Requirements

Same test requirement as in clause 6.4A.1.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.1.4D Frequency error for inter-band EN-DC including FR2 for UL-MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4D.1 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS and Annex F needs to be updated.

#### 6.4B.1.4D.1 Test purpose

Same test purpose as in clause 6.4D.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.1.4D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 and UL MIMO.

#### 6.4B.1.4D.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], 38.101-1 [2] and 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.1.4.

Same minimum conformance requirements as in clause 6.4D.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.4B.1.4D.4 Test description

#### 6.4B.1.4D.4.1 Initial conditions

Same test description as in clause 6.4D.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4D.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4D.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4D.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.1.4D.5 Test requirement

Same test requirement as in clause 6.4D.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2 Transmit Modulation Quality for DC

# 6.4B.2.1 Transmit Modulation Quality for intra-band contiguous EN-DC

#### 6.4B.2.1.1 Error Vector Magnitude for intra-band contiguous EN-DC

#### 6.4B.2.1.1.1 Test purpose

The Error Vector Magnitude is a measure of the difference between the reference waveform and the measured waveform. This difference is called the error vector. Before calculating the EVM the measured waveform is corrected by the sample timing offset and RF frequency offset. Then the carrier leakage shall be removed from the measured waveform before calculating the EVM.

The measured waveform is further equalised using the channel estimates subjected to the EVM equaliser spectrum flatness requirement specified in clause 6.4B.2.1.4.3. For DFT-s-OFDM waveforms, the EVM result is defined after the front-end FFT and IDFT as the square root of the ratio of the mean error vector power to the mean reference power expressed as a %. For CP-OFDM waveforms, the EVM result is defined after the front-end FFT as the square root of the ratio of the mean error vector power to the mean reference power expressed as a %.

The basic EVM measurement interval in the time domain is one preamble sequence for the PRACH and the duration of PUCCH/PUSCH channel, or one hop, if frequency hopping is enabled for PUCCH and PUSCH in the time domain. The EVM measurement interval is reduced by any symbols that contains an allowable power transient as defined in clause 6.3.3.3 of TS 38.521-1 [8].

#### 6.4B.2.1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band EN-DC.

#### 6.4B.2.1.1.3 Minimum conformance requirements

For the intra-band contiguous EN-DC with one component carrier per CG the EVM requirement applies with PRB allocation in one of the CG and the other CG unallocated.

The EVM requirements for each CG are according to clause 6.5.2 of TS 36.101 [5] for the MCG and clause 6.4.2 of TS 38.101-1 [2] for the SCG with EN-DC configured.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.1.1.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.4B.2.1.1.4 Test description

Same test description as in clause 6.4.2.1.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Table 6.4B.2.1.1.4-1: Test Configuration Table

Initial Conditions					
Test Frequencies as specified in	Mid range				
TS 38.508-1 [6] clause 4.3.1					
Test EN-DC bandwidth combination as	Highest NRB_agg (NOTE 1)				
specified in Table 5.3B.1.2-1					
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same					
NRB_agg , only the combinat	ion with the highest NRB_SCG is tested.				

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 6.4B.2.1.1.4-1.

For Initial conditions as in clause 6.4.2.1.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.

3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.4.2.1.4.2 in TS 38.521-1 [8].

For Message contents as in clause 6.4.2.1.4.3 in TS 38.521-1 [8], the following exception:

#### Table 6.4B.2.1.1.4-2: RACH-ConfigGeneric: PRACH measurement

Derivation Path: TS 38.508-1[5], Table 4.6.3-130			
Information Element	Value/remark	Comment	Condition
RACH-ConfigGeneric ::= SEQUENCE {			
prach-ConfigurationIndex	14	Unpaired	PRACH
		Spectrum	Format 0

#### 6.4B.2.1.1.5 Test requirements

Same test requirement as in clause 6.4.2.1.5 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.2.1.2 Carrier Leakage for intra-band contiguous EN-DC

#### 6.4B.2.1.2.1 Test purpose

Carrier leakage expresses itself as unmodulated sine wave with the carrier frequency or centre frequency of aggregated transmission bandwidth configuration. It is an interference of approximately constant amplitude and independent of the amplitude of the wanted signal. Carrier leakage interferes with the centre sub carriers of the UE under test (if allocated), especially, when their amplitude is small. The measurement interval is defined over one slot in the time domain.

The purpose of this test is to exercise the UE transmitter to verify its modulation quality in terms of carrier leakage.

#### 6.4B.2.1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band EN-DC.

#### 6.4B.2.1.2.3 Minimum conformance requirements

The carrier leakage requirements for each CG are according to clause 6.5.2 of TS 36.101 [5] for the MCG and clause 6.4.2 of TS 38.101-1 [2] for the SCG with EN-DC configured.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.1.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.4B.2.1.2.4 Test description

Same test description as in clause 6.4.2.2.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

#### Table 6.4B.2.1.2.4-1: Test Configuration

Initial Conditions					
Test Frequencies as specified in	Mid range				
TS 38.508-1 [6] clause 4.3.1					
Test EN-DC bandwidth combination as	Highest NRB_agg (NOTE 1)				
specified in Table 5.3B.1.2-1					
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB_agg ,					
only the combination with the high	phest NRB_SCG is tested.				

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 6.4B.2.1.2.4-1For Initial conditions as in clause 6.4.2.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.4B.2.1.2.5 Test requirements

Same test requirement as in clause 6.4.2.2.5 in TS 38.521-1 [8] for the NR carrier.

## 6.4B.2.1.3 In-band Emissions for intra-band contiguous EN-DC

# 6.4B.2.1.3.1 Test purpose

The in-band emissions are a measure of the interference falling into the non-allocated resources blocks.

The in-band emission is defined as the average emission across 12 sub-carriers and as a function of the RB offset from the edge of the allocated UL transmission bandwidth. The in-band emission is measured as the ratio of the UE output power in a non–allocated RB to the UE output power in an allocated RB.

The basic in-band emissions measurement interval is defined over one slot in the time domain, however, the minimum requirement applies when the in-band emission measurement is averaged over 10 sub-frames. When the PUSCH or PUCCH transmission slot is shortened due to multiplexing with SRS, the in-band emissions measurement interval is reduced by one or more symbols, accordingly.

The purpose of this test is to exercise the UE transmitter to verify its modulation quality in terms of in-band emissions.

#### 6.4B.2.1.3.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

# 6.4B.2.1.3.3 Minimum conformance requirements

For the MCG the in-band emission requirements in Table 6.5.2A.3.1-1 and Table 6.5.2A.3.1-2 in TS 36.101 [5] apply within the aggregated transmission bandwidth configuration of the EN-DC bandwidth with the carriers of both CGs active and one single contiguous PRB allocation of bandwidth  $L_{\it CRB}$  within the MCG at the edge of the said aggregated transmission bandwidth configuration.

For the SCG the in-band emission requirements in Table 6.5.2A.3.1-1 and Table 6.5.2A.3.1-2 in TS 36.101 [5] apply within the aggregated transmission bandwidth configuration of the EN-DC bandwidth with the carriers of both CGs

active and one single contiguous PRB allocation of bandwidth  $L_{CRB}$  within the SCG at the edge of the aggregated transmission bandwidth configuration.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.1.3

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 6.4B.2.1.3.4 Test description

#### 6.4B.2.1.3.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and test channel bandwidths based on NR operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC combination of test channel bandwidth and sub-carrier spacing, and are shown in table 6.4B.2.1.3.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annexes A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521.1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.4B.2.1.3.4.1-1: Test configuration table

Initial Conditions							
Test Environment as specified in TS 38.508-1 [6] clause 4.1			Norm	nal			
as specified in 10 50.500-1 [0] clause 4.1			110111	iai			
Test Frequencies							
as specified in	TS 38.508-1 [6] cla	use 4.3.1	Low	range, Mid range, Hig	gh range		
Test EN-DC ba	andwidth combination	on as					
specified in Ta	ble 5.3B.1.2-1		Lowe	est N <sub>RB_agg</sub> , Highest N	RB_agg (NOTE 2)		
Test SCS for the	he NR cell as speci	fied in	Lowe	oct			
TS 38.521-1 [8	B] Table 5.3.5-1						
Test Parameters							
Test ID	Downlink Configuration		E 117	RA Cell	ink Configuration  NR Cell		
	Comiguration			KA Cell			
1		NA - ded -	<u>(!</u>	DD allacation	Marshalatian	DD allagation	
		Modula	tion	RB allocation (NOTE 5)	Modulation	RB allocation (NOTE 1)	
1 (NOTE3)		Modula: QPSI			Modulation  DFT-s-OFDM QPSK		
1 (NOTE3) 2 (NOTE 4)			K	(NOTE 5)		(NOTE 1)	
2 (NOTE 4) 3	N/A for In-band	QPSI	K	(NOTE 5)	DFT-s-OFDM QPSK	(NOTE 1) Inner_1RB_Right	
2 (NOTE 4) 3 (NOTE3) 4	N/A for In-band emission test	QPSI QPSI	K K	(NOTE 5) 0 0	DFT-s-OFDM QPSK DFT-s-OFDM QPSK	(NOTE 1) Inner_1RB_Right Inner_1RB_Left	
2 (NOTE 4) 3		QPSI QPSI QPSI	K K K	(NOTE 5)  0  0  0  0	DFT-s-OFDM QPSK  DFT-s-OFDM QPSK  CP-OFDM QPSK  CP-OFDM QPSK	(NOTE 1) Inner_1RB_Right Inner_1RB_Left Inner_1RB_Right Inner_1RB_Left	
2 (NOTE 4) 3 (NOTE3) 4 (NOTE 4)		QPSI QPSI QPSI	K K K	(NOTE 5) 0 0	DFT-s-OFDM QPSK  DFT-s-OFDM QPSK  CP-OFDM QPSK	(NOTE 1) Inner_1RB_Right Inner_1RB_Left Inner_1RB_Right	
2 (NOTE 4) 3 (NOTE3) 4 (NOTE 4) 5		QPSI QPSI QPSI	K K K	(NOTE 5)  0  0  0  0	DFT-s-OFDM QPSK  DFT-s-OFDM QPSK  CP-OFDM QPSK  CP-OFDM QPSK	(NOTE 1) Inner_1RB_Right Inner_1RB_Left Inner_1RB_Right Inner_1RB_Left	

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].

NOTE 2: If the UE supports multiple CC combinations in the EN-DC configuration with the same N<sub>RB\_agg</sub>, select the combination to test as follows:

- Lowest ENBW: NR component with lowest  $N_{\text{RB}}$  is tested.
- Highest ENBW: NR component with highest N<sub>RB</sub> is tested.
- NOTE 3: Applicable when E-UTRA cell carrier frequency is lower than NR cell carrier.
- NOTE 4: Applicable when NR cell carrier frequency is lower than E-UTRA cell carrier.
- NOTE 5: Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component.

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1 for TE diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. NR downlink signals are initially set up according to Annex C.0, C.1, and C.2 and uplink signals according to Annex G.0, G.1, G.2, and G.3.0 of TS 38.521-1 [8].
- 5. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.4B.2.1.3.4.3.

#### 6.4B.2.1.3.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.4B.2.1.3.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 2. For NR CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as +MU to +(MU + Uplink power control window size) dB of the target power level 0dBm, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.2-1 for the carrier frequency f and the channel bandwidth BW.
  - Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
- 3. Measure In-band emission on NR CC using Global In-Channel Tx-Test (Annex E). Measure power spectral density on E-UTRA CC. For TDD slots with transient periods are not under test.
- 4. For NR CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as +MU to +(MU + Uplink power control window size) dB of the target power level -30dBm, where MU and Uplink power control window size are defined above.
- 5. Measure In-band emission on NR CC using Global In-Channel Tx-Test (Annex E). Measure power spectral density on E-UTRA CC. For TDD slots with transient periods are not under test
- 6. For NR CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as +MU to +(MU + Uplink power control window size) dB of the target power level -40dBm, where MU and Uplink power control window size are defined above.
- 7. Measure In-band emission on NR CC using Global In-Channel Tx-Test (Annex E). Measure power spectral density on E-UTRA CC. For TDD slots with transient periods are not under test.
- 8. For E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as +MU to +(MU + Uplink power control window size) dB of the target power level 0dBm, where:

- MU is the test system uplink power measurement uncertainty and is specified in Table F.1.2-1 for the carrier frequency f and the channel bandwidth BW.
- Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
- 9. Measure In-band emission on E-UTRA CC using Global In-Channel Tx-Test (Annex E). Measure power spectral density on NR CC. For TDD slots with transient periods are not under test.
- 10. For E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as +MU to +(MU + Uplink power control window size) dB of the target power level -30dBm, where MU and Uplink power control window size are defined above.
- 11. Measure In-band emission on E-UTRA CC using Global In-Channel Tx-Test (Annex E). Measure power spectral density on NR CC. For TDD slots with transient periods are not under test
- 12. For E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as +MU to +(MU + Uplink power control window size) dB of the target power level -40dBm, where MU and Uplink power control window size are defined above.
- 13. Measure In-band emission on E-UTRA CC using Global In-Channel Tx-Test (Annex E). Measure power spectral density on NR CC. For TDD slots with transient periods are not under test.
- NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration table 6.4B.2.1.3.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.
- NOTE 2: The purpose of the Uplink power control window is to ensure that the actual UE output power is no less than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

Table 6.4B.2.1.3.4.2-1: Void

Table 6.4B.2.1.3.4.2-2: Void

# 6.4B.2.1.3.4.3 Message contents

Message contents are according to TS 36.508-1 [11] clause 4.6 and TS 38.508-1 [6] clause 4.6.1.

#### 6.4B.2.1.3.5 Test requirements

Each of the [20] In-band emissions results, derived in Annex E.4.3 shall not exceed the corresponding values in Table 6.4B.2.1.3.5-1.

Table 6.4B.2.1.3.5-1: Test requirements for in-band emissions (allocated component carrier)

Parameter	Unit		Limit	Applicable Frequencies
General	dB	$20 \cdot \log_{10} E$	$-10 \cdot \log_{10} \left(N_{RB} / L_{CRB}\right),$ $VM - 3 - 5 \cdot \left(\left \Delta_{RB}\right  - 1\right) / L_{CRB},$ $180  kHz - P_{RB} $	Any non-allocated (NOTE 2)
IQ Image	dB		-25	Exception for IQ image (NOTE 3)
Comica		25 + TT	Output power > 0 dBm	Everation for Corrier
Carrier	dBc	20 + TT	-30 dBm ≤ Output power ≤ 0 dBm	Exception for Carrier frequency (NOTE 4)
leakage		10 + TT	-40 dBm ≤ Output power < -30 dBm	riequency (NOTE 4)

- NOTE 1: An in-band emissions combined limit is evaluated in each non-allocated RB. For each such RB, the minimum requirement is calculated as the higher of  $P_{RB}$  30 dB and the power sum of all limit values (General, IQ Image or Carrier leakage) that apply.  $P_{RB}$  is defined in NOTE 9. The limit is evaluated in each non-allocated RB.
- NOTE 2: The measurement bandwidth is 1 RB and the limit is expressed as a ratio of measured power in one nonallocated RB to the measured average power per allocated RB, where the averaging is done across all allocated RBs
- NOTE 3: Exceptions to the general limit are allowed for up to  $L_{\it CRBs}$  +1 RBs within a contiguous width of  $L_{\it CRBs}$  +1 non-allocated RBs. The measurement bandwidth is 1 RB.
- NOTE 4: Exceptions to the general limit are allowed for up to two contiguous non-allocated RBs. The measurement bandwidth is 1 RB and the limit is expressed as a ratio of measured power in the non-allocated RB to the measured total power in all allocated RBs.
- NOTE 5:  $L_{\it CRB}$  is the Transmission Bandwidth (see Figure 5.6-1) not exceeding  $\lfloor N_{\it RB}/2-1 \rfloor$
- NOTE 6:  $N_{RB}$  is the Transmission Bandwidth Configuration (see Figure 5.6-1) of the component carrier with RBs allocated.
- NOTE 7: *EVM* is the limit specified in Table 6.5.2.1.1-1 for the modulation format used in the allocated RBs.
- NOTE 8:  $\Delta_{RB}$  is the starting frequency offset between the allocated RB and the measured non-allocated RB (e.g.  $\Delta_{RB}=1$  or  $\Delta_{RB}=-1$  for the first adjacent RB outside of the allocated bandwidth).
- NOTE 9:  $P_{\!\scriptscriptstyle RB}$  is the transmitted power per 180 kHz in allocated RBs, measured in dBm.
- NOTE 10: Test tolerance TT = 0.8 dB.

The in-band emissions results, measured with the spectral test shall not exceed the corresponding values in Table 6.4B.2.1.3.5-2.

Table 6.4B.2.1.3.5-2: Test requirements for in-band emissions (not allocated component carrier)

Para- meter	Unit	Meas BW NOTE 1		Limit	remark	Applicable Frequencies							
General	dB	BW of 1 RB (180KHz rectangular)	20 · log <sub>10</sub>	$25 - 10 \cdot \log_{10}(N_{RB} / L_{CRB}),$ $EVM - 3 - 5 \cdot ( \Delta_{RB}  - 1) / L_{CRB},$ $e / 180  kHz - P_{RB}$	The reference value is the average power per allocated RB in the allocated component carrier	Any RB in the non-allocated component carrier. The frequency raster of the RBs is derived when this component carrier is allocated with RBs							
IQ Image	dB	BW of 1 RB (180KHz rectangular)		-25 + TT NOTE 2	The reference value is the average power per allocated RB in the allocated component carrier	The frequencies of the $L_{CRB}$ contiguous non-allocated RBs are unknown. The frequency raster of the RBs is derived when this component carrier is allocated with RBs							
		BW of 1 RB (180KHz		NOTE 3	The reference	The frequencies of							
	rectangular)							rectangular)	rectangular)	-25 + TT	Output power > 0 dBm	value is the total power	the up to 2 non-allocated
Carrier leakage		-20 + TT	-30 dBm ≤ Output power ≤ 0 dBm	of the allocated RBs in the allocated component carrier	RBs are unknown. The frequency raster of the RBs is derived when this								
			-10 + TT	-40 dBm ≤ Output power < -30 dBm	23	component carrier is allocated with RBs							

NOTE 1: Resolution BWs smaller than the measurement BW may be integrated to achieve the measurement bandwidth.

NOTE 2: Exceptions to the general limit is are allowed for up to  $L_{\it CRB}$  +1 RBs within a contiguous width of  $L_{\it CRB}$  +1 non-allocated RBs.

NOTE 3: Two Exceptions to the general limit are allowed for up to two contiguous non-allocated RBs

NOTE 4: NOTES 1, 5, 6, 7, 8, 9 from Table 6.5.2A.3.1-1 apply for Table 6.5.2A.3.1-2 as well.

NOTE 5:  $\Delta_{RB}$  for measured non-allocated RB in the non-allocated component carrier may take non-integer values when the carrier spacing between the CCs is not a multiple of RB.

NOTE 6: Test tolerance TT = 0.8 dB.

# 6.4B.2.1.4 EVM Equalizer Flatness for intra-band contiguous EN-DC

# 6.4B.2.1.4.1 Test purpose

Same test purpose as in clause 6.4.2.4 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.2.1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

#### 6.4B.2.1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.4.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.4B.2.1.4.4 Test description

Same test description as in clause 6.4.2.4.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

Table 6.4B.2.1.4.4-1: Test Configuration Table

Initial Conditions		
Test Frequencies as specified in	Mid range	
TS 38.508-1 [6] clause 4.3.1		
Test EN-DC bandwidth combination as	Highest NRB_agg (NOTE 1)	
specified in Table 5.3B.1.2-1		
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same		
NRB_agg, only the combination with the highest NRB_SCG is tested.		

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.4.2.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.4.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.4.4.2 in TS 38.521-1 [8] with the following steps added for E-UTRA component:

1.1. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.4B.2.1.4.5 Test requirement

Same test requirement as in clause 6.4.2.4.5 in TS 38.521-1 [8] for the NR carrier.

# 6.4B.2.2 Transmit Modulation Quality for intra-band non-contiguous EN-DC

# 6.4B.2.2.1 Error Vector Magnitude for intra-band non-contiguous EN-DC

# 6.4B.2.2.1.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.2.2.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.4B.2.2.1.3 Minimum conformance requirements

For the intra-band non-contiguous EN-DC with one component carrier per CG the EVM requirement applies with PRB allocation in one of the CG and the other CG unallocated.

The EVM requirements for each CG are according to clause 6.5.2.1 of TS 36.101 [5] for the MCG and clause 6.4.2.1.3 of TS 38.521-1 [8] for the SCG with EN-DC configured.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.2.1.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.4B.2.2.1.4 Test description

Same test description as in clause 6.4.2.1.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.For Initial conditions as in clause 6.4.2.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.4.2.1.4.2 in TS 38.521-1 [8].

For Message contents as in clause 6.4.2.1.4.3 in TS 38.521-1 [8], the following exception:

Table 6.4B.2.2.1.4-1: RACH-ConfigGeneric: PRACH measurement

Derivation Path: TS 38.508-1[5], Table 4.6.3-130			
Information Element	Value/remark	Comment	Condition
RACH-ConfigGeneric ::= SEQUENCE {			
prach-ConfigurationIndex	14	Unpaired	PRACH
		Spectrum	Format 0

#### 6.4B.2.2.1.5 Test requirement

Same test requirement as in clause 6.4.2.1.5 in TS 38.521-1 [8] for the NR carrier.

## 6.4B.2.2.2 Carrier Leakage for intra-band non-contiguous EN-DC

# 6.4B.2.2.2.1 Test purpose

Same test purpose as in clause 6.4.2.2.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.2.2.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.4B.2.2.2.3 Minimum conformance requirements

The carrier leakage requirements for each CG are according to clause 6.5.2.2 of TS 36.101 [5] for the MCG and clause 6.4.2.2.3 of TS 38.521-1 [8] for the SCG with EN-DC configured and PRB allocation only in the CG being measured.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.2.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.4B.2.2.2.4 Test description

Same test description as in clause 6.4.2.2.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.4.2.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 6.4B.2.2.2.5 Test requirement

Same test requirement as in clause 6.4.2.2.5 in TS 38.521-1 [8] for the NR carrier.

# 6.4B.2.2.3 In-band Emissions for intra-band non-contiguous EN-DC

## 6.4B.2.2.3.1 Test purpose

Same test purpose as in clause 6.4.2.3.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.2.2.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

#### 6.4B.2.2.3.3 Minimum conformance requirements

For the MCG the in-band emission requirements in Table 6.5.2A.3.1-1 and Table 6.5.2A.3.1-2 in TS 36.101 [5] apply within the transmission bandwidth configuration of the MCG with the carriers of both CGs active and one single contiguous PRB allocation of bandwidth  $L_{CRB}$  within the MCG at the edge of the transmission bandwidth configuration.

For the SCG the in-band emission requirements in Table 6.4.2.3-1 TS 38.101-1 [2]] apply within the transmission bandwidth configuration of the SCG with the carriers of both CGs active and one single contiguous PRB allocation of bandwidth  $L_{CRB}$  within the SCG at the edge of the transmission bandwidth configuration.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.2.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.4B.2.2.3.4 Test description

Same test description as in clause 6.4.2.3.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

### Table 6.4B.2.2.3.4-1: Test Configuration Table

Initial Conditions			
Test Frequencies as specified in	Low range, Mid range, High range		
TS 38.508-1 [6] clause 4.3.1			
Test EN-DC bandwidth combination as	Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (NOTE 1)		
specified in Table 5.3B.1.2-1			
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same			
NRB_agg, only the combination with the highest NRB_SCG is tested for Lowest NRB_agg and Highest			
NRB agg.			

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 6.4B.2.2.3.4-1.

For Initial conditions as in clause 6.4.2.3.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.3.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.4B.2.2.3.5 Test requirements

Same test requirement as in clause 6.4.2.3.5 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.2.2.4 EVM Equalizer Flatness for intra-band non-contiguous EN-DC

## 6.4B.2.2.4.1 Test purpose

Same test purpose as in clause 6.4.2.4 in TS 38.521-1 [8] for the NR carrier.

# 6.4B.2.2.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

# 6.4B.2.2.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.4.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.4B.2.2.4.4 Test description

Same test description as in clause 6.4.2.4.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

## Table 6.4B.2.2.4.4-1: Test Configuration Table

	Initial Conditions				
Test Environment as specified in TS 38.508-1 [6] clause 4.1		Normal, TL/VL, TL/VH, TH/VL, TH/VH			
Test Frequence clause 4.3.1	Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1		MaxWGap		
Test Channel Bandwidths as specified in TS 38.508-1 [6] clause 4.3.1		Highest N <sub>RB_agg</sub> (NOTE 1, 2)			
Test SCS as s	specified in Table 5.3.5-1	Lowest			
	Test parameters				
	Downlink Configuration Uplink Configuration		figuration		
Test ID	N/A for EVM equalizer flatness testing	Modulation	NR RB allocation (NOTE 3)		
1	1 DFT-s-OFDM QPSK Outer Full				
2		CP-OFDM QPSK	Outer Full		
NOTE 1: Test Channel Bandwidths are checked separately for each NR band, which applicable channel bandwidths are specified in Table 5.3.5-1 of 38.521-1 [8].  NOTE 2: Lowest and highest allowed NR channel BW as specified in Table 5.3B.1.3-1. If the UE					
INDIEZ. LO	vest and highest allowed NR channel BVV a	as specilied III Lable 5.51	3. I .3° I . II IIIE UE - I		
sup onl	vest and highest allowed NR channel BW a sports multiple CC Combinations in the EN y the combination with the highest NRB_S e specific configuration of each RB allocation	<ul> <li>-DC Configuration with the CG is tested.</li> </ul>	ne same NRB_agg,		

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.4.2.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.4.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.4.4.2 in TS 38.521-1 [8] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 6.4B.2.2.4.5 Test requirement

Same test requirement as in clause 6.4.2.4.5 in TS 38.521-1 [8] for the NR carrier.

# 6.4B.2.3 Transmit Modulation Quality for inter-band EN-DC within FR1

# 6.4B.2.3.1 Error Vector Magnitude for inter-band EN-DC within FR1 (1 NR CC)

## 6.4B.2.3.1.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-1 [8] for the NR carrier.

## 6.4B.2.3.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

## 6.4B.2.3.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.4B.2.3.1.4 Test description

Same test description as in clause 6.4.2.1.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.For Initial conditions as in clause 6.4.2.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.4.2.1.4.2 in TS 38.521-1 [8].

## 6.4B.2.3.1.5 Test requirement

Same test requirement as in clause 6.4.2.1.5 in TS 38.521-1 [8] for the NR carrier.

## 6.4B.2.3.2 Carrier Leakage for inter-band EN-DC within FR1 (1 NR CC)

# 6.4B.2.3.2.1 Test purpose

Same test purpose as in clause 6.4.2.2.1 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.2.3.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

## 6.4B.2.3.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.2.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.4B.2.3.2.4 Test description

Same test description as in clause 6.4.2.2.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.4.2.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.2.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 6.4B.2.3.2.5 Test requirement

Same test requirement as in clause 6.4.2.2.5 in TS 38.521-1 [8] for the NR carrier.

# 6.4B.2.3.3 In-band Emissions for inter-band EN-DC within FR1 (1 NR CC)

#### 6.4B.2.3.3.1 Test purpose

Same test purpose as in clause 6.4.2.3.1 in TS 38.521-1 [8] for the NR carrier.

## 6.4B.2.3.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

## 6.4B.2.3.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.3.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.4B.2.3.3.4 Test description

Same test description as in clause 6.4.2.3.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.For Initial conditions as in clause 6.4.2.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.3.4.1 in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.4.2.3.4.2 in TS 38.521-1 [8].

## 6.4B.2.3.3.5 Test requirement

Same test requirement as in clause 6.4.2.3.5 in TS 38.521-1 [8] for the NR carrier.

# 6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1 (1 NR CC)

# 6.4B.2.3.4.1 Test purpose

Same test purpose as in clause 6.4.2.4 in TS 38.521-1 [8] for the NR carrier.

#### 6.4B.2.3.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

#### 6.4B.2.3.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.4.3 in TS 38.521-1 [8] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.4B.2.3.4.4 Test description

#### 6.4B.2.3.4.4.1 Initial conditions

Same test description as in clause 6.4.2.4.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.4.2.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.4.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.4.4.2 in TS 38.521-1 [8] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.4B.2.3.4.5 Test requirement

Same test requirement as in clause 6.4.2.4.5 in TS 38.521-1 [8] for the NR carrier.

# 6.4B.2.3a Transmit Modulation Quality for inter-band NE-DC within FR1

# 6.4B.2.3a.1 Error Vector Magnitude for inter-band NE-DC within FR1

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested covered in 6.4.2.1 and 6.4A.2.1 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.5.2.1 and 6.5.2A.1 of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 6.4B.2.3a.2 Carrier Leakage for inter-band NE-DC within FR1

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 6.4.2.2 and 6.4A.2.2 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.5.2.2 and 6.5.2A.2 of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

## 6.4B.2.3a.3 In-band Emissions for inter-band NE-DC within FR1

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 6.4.2.3 and 6.4A.2.3 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.5.2 and 6.5.2A.3 of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 6.4B.2.3a.4 EVM Equalizer Flatness for inter-band NE-DC within FR1 (1 NR CC)

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier in this test case are tested in 6.4.2.4 and 6.4.2.5 of TS 38.521-1 [8], and the requirements for LTE carrier in this test case are tested in 6.5.2.4 of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 6.4B.2.4 Transmit Modulation Quality for inter-band EN-DC including FR2

# 6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined in the referred test case 6.4.2.1 in TS 38.521-2 [9]:

Measurement Uncertainty and Test Tolerance are FFS except for PUSCH, PC3 in FR2a and FR2b.

#### 6.4B.2.4.1.1 Test purpose

Same test purpose as in clause 6.4.2.1 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

## 6.4B.2.4.1.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], 38.101-1 [2] and 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

## 6.4B.2.4.1.4 Test description

#### 6.4B.2.4.1.4.1 Initial conditions

Same test description as in clause 6.4.2.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.

3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.1.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.1.5 Test requirement

Same test requirement as in clause 6.4.2.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.1a Error Vector Magnitude with Power Boost for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined in the referred test case 6.4.2.1\_1 in TS 38.521-2 [9]:

Measurement Uncertainty and Test Tolerance are FFS except for PUSCH, PC3 in FR2a and FR2b.

## 6.4B.2.4.1a.1 Test purpose

Same test purpose as in clause 6.4.2.1\_1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.1a.2 Test applicability

This test case applies to all types of NR UE release 16 and forward supporting *mpr-PowerBoost-FR2-r16* UE capability, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

## 6.4B.2.4.1a.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], 38.101-1 [2] and 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4.2.1\_1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

## 6.4B.2.4.1a.4 Test description

Same test description as in clause 6.4.2.1\_1.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4.2.1\_1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.1\_1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.1\_1.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.1\_2.5 Test requirement

Same test requirement as in clause 6.4.2.1\_1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.1\_1 Error Vector Magnitude for inter-band EN-DC including FR2 (>1 NR CC)

## 6.4B.2.4.1\_1.1 Error Vector Magnitude for inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.1.1 in TS 38.521-2 [9] is incomplete.
- Test configuration table is FFS.
- This test is incomplete due to lack of RRC framework for LO position retrieval

#### 6.4B.2.4.1\_1.1.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.1\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

## 6.4B.2.4.1\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

## 6.4B.2.4.1\_1.1.4 Test description

## 6.4B.2.4.1\_1.1.4.1 Initial condition

Same test description as in clause 6.4A.2.1.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.1\_1.1.5 Test Requirements

Same test requirement as in clause 6.4A.2.1.1.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.1\_1.2 Error Vector Magnitude for inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.1.2 in TS 38.521-2 [9] is incomplete.
- Test configuration table is FFS.

#### 6.4B.2.4.1\_1.2.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.1\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

#### 6.4B.2.4.1\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

## 6.4B.2.4.1\_1.2.4 Test description

#### 6.4B.2.4.1 1.2.4.1 Initial condition

Same test description as in clause 6.4A.2.1.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.1.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.1.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.1.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.1\_1.2.5 Test Requirements

Same test requirement as in clause 6.4A.2.1.2.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.1\_1.3 Error Vector Magnitude for inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.1.3 in TS 38.521-2 [9] is incomplete.
- Test configuration table is FFS.

## 6.4B.2.4.1\_1.3.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.1 1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

#### 6.4B.2.4.1\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

## 6.4B.2.4.1\_1.3.4 Test description

#### 6.4B.2.4.1\_1.3.4.1 Initial condition

Same test description as in clause 6.4A.2.1.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.1.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.1.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.1.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.2.4.1\_1.3.5 Test Requirements

Same test requirement as in clause 6.4A.2.1.3.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.1\_1.4 Error Vector Magnitude for inter-band EN-DC including FR2 (5 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.1\_1.4.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.1\_1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5 NR UL CCs.

#### 6.4B.2.4.1 1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

## 6.4B.2.4.1\_1.4.4 Test description

#### 6.4B.2.4.1 1.4.4.1 Initial condition

Same test description as in clause 6.4A.2.1.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.1.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.1.4.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.1.4.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.4B.2.4.1\_1.4.5 Test Requirements

Same test requirement as in clause 6.4A.2.1.4.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.1\_1.5 Error Vector Magnitude for inter-band EN-DC including FR2 (6 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.1\_1.5.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.1\_1.5.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 6 NR UL CCs.

#### 6.4B.2.4.1 1.5.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

#### 6.4B.2.4.1 1.5.4 Test description

#### 6.4B.2.4.1\_1.5.4.1 Initial condition

Same test description as in clause 6.4A.2.1.5.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.1.5.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.1.5.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.1.5.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.2.4.1\_1.5.5 Test Requirements

Same test requirement as in clause 6.4A.2.1.5.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.1\_1.6 Error Vector Magnitude for inter-band EN-DC including FR2 (7 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- Measurement Uncertainty and Test Tolerance are FFS.

# 6.4B.2.4.1\_1.6.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.1\_1.6.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 7 NR UL CCs.

## 6.4B.2.4.1\_1.6.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

## 6.4B.2.4.1\_1.6.4 Test description

#### 6.4B.2.4.1 1.6.4.1 Initial condition

Same test description as in clause 6.4A.2.1.6.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.1.6.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.1.6.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.1.6.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.4B.2.4.1\_1.6.5 Test Requirements

Same test requirement as in clause 6.4A.2.1.6.5 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.1\_1.7 Error Vector Magnitude for inter-band EN-DC including FR2 (8 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.1\_1.7.1 Test purpose

Same test purpose as in clause 6.4.2.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.1\_1.7.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 8 NR UL CCs.

## 6.4B.2.4.1\_1.7.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

## 6.4B.2.4.1\_1.7.4 Test description

## 6.4B.2.4.1\_1.7.4.1 Initial condition

Same test description as in clause 6.4A.2.1.7.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.1.7.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.1.7.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.1.7.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.1\_1.7.5 Test Requirements

Same test requirement as in clause 6.4A.2.1.7.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.1D Error Vector Magnitude for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4D.2.1 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS and Annex F needs to be updated.

## 6.4B.2.4.1D.1 Test purpose

Same test purpose as in clause 6.4D.2.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.1D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 and UL MIMO.

### 6.4B.2.4.1D.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], 38.101-1 [2] and 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4D.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

6.4B.2.4.1D.4 Test description

6.4B.2.4.1D.4.1 Initial conditions

Same test description as in clause 6.4D.2.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4D.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4D.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4D.2.1.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.4B.2.4.1D.5 Test requirement

Same test requirement as in clause 6.4D.2.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.4D EVM Equalizer Flatness for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4D.2.4 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS and Annex F needs to be updated.

## 6.4B.2.4.4D.1 Test purpose

Same test purpose as in clause 6.4D.2.4.1 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.4D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 and UL MIMO.

## 6.4B.2.4.4D.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], TS 38.101-1 [2] and TS 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4D.2.4.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

6.4B.2.4.4D.4 Test description

6.4B.2.4.4D.4.1 Initial conditions

Same test description as in clause 6.4D.2.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4D.2.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4D.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4D.2.4.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.4D.5 Test requirement

Same test requirement as in clause 6.4D.2.4.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- Measurement Uncertainty and Test Tolerance are FFS for PC1, PC2, and PC4.
- The test case is incomplete for band n259.

#### 6.4B.2.4.2.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.4B.2.4.2.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], 38.101-1 [2] and 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4.2.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied

6.4B.2.4.2.4 Test description

### 6.4B.2.4.2.4.1 Initial conditions

Same test description as in clause 6.4.2.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4.2.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.2.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.2.5 Test requirement

Same test requirement as in clause 6.4.2.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.2D Carrier Leakage for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4D.2.2 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS and Annex F needs to be updated.

# 6.4B.2.4.2D.1 Test purpose

Same test purpose as in clause 6.4D.2.2.1 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 and UL MIMO.

## 6.4B.2.4.2D.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], 38.101-1 [2] and 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4D.2.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied

6.4B.2.4.2D.4 Test description

6.4B.2.4.2D.4.1 Initial conditions

Same test description as in clause 6.4D.2.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4D.2.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4D.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4D.2.2.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.2.4.2D.5 Test requirement

Same test requirement as in clause 6.4D.2.2.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1 Carrier Leakage for inter-band EN-DC including FR2 (>1 NR CC)

## 6.4B.2.4.2\_1.1 Carrier Leakage for inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.2.1 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.
- This test is incomplete due to lack of RRC framework for LO position retrieval.

## 6.4B.2.4.2 1.1.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR CCs.

# 6.4B.2.4.2\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.2.3.

### 6.4B.2.4.2\_1.1.4 Test Description

#### 6.4B.2.4.2\_1.1.4.1 Initial conditions

Same test description as in clause 6.4A.2.2.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

### 6.4B.2.4.2\_1.1.5 Test Requirement

Same test requirement as in clause 6.4A.2.2.1.5 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.2\_1.2 Carrier Leakage for inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.2.2 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.2\_1.2.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR CCs.

# 6.4B.2.4.2\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.2.3.

#### 6.4B.2.4.2\_1.2.4 Test Description

### 6.4B.2.4.2 1.2.4.1 Initial conditions

Same test description as in clause 6.4A.2.2.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.2.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.2.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.2.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.4B.2.4.2\_1.2.5 Test Requirement

Same test requirement as in clause 6.4A.2.2.2.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.3 Carrier Leakage for inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.2.3 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

#### 6.4B.2.4.2 1.3.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.2\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

#### 6.4B.2.4.2\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.2.3.

# 6.4B.2.4.2\_1.3.4 Test Description

# 6.4B.2.4.2\_1.3.4.1 Initial conditions

Same test description as in clause 6.4A.2.2.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.2.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.2.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.2.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.2\_1.3.5 Test Requirement

Same test requirement as in clause 6.4A.2.2.3.5 in TS 38.521-2 [9] for the NR carrier.

### 6.4B.2.4.2 1.4 Carrier Leakage for inter-band EN-DC including FR2 (5 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.2.4 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

### 6.4B.2.4.2 1.4.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.2\_1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5 NR UL CCs.

#### 6.4B.2.4.2 1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.2.3.

## 6.4B.2.4.2\_1.4.4 Test Description

#### 6.4B.2.4.2\_1.4.4.1 Initial conditions

Same test description as in clause 6.4A.2.2.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.2.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.2.4.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.2.4.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.4B.2.4.2\_1.4.5 Test Requirement

Same test requirement as in clause 6.4A.2.2.4.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.5 Carrier Leakage for inter-band EN-DC including FR2 (6 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.2.5 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.2\_1.5.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.5.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 6 NR UL CCs.

#### 6.4B.2.4.2 1.5.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.2.3.

#### 6.4B.2.4.2\_1.5.4 Test Description

## 6.4B.2.4.2\_1.5.4.1 Initial conditions

Same test description as in clause 6.4A.2.2.5.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.2.5.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.2.5.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.2.5.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.2\_1.5.5 Test Requirement

Same test requirement as in clause 6.4A.2.2.5.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.6 Carrier Leakage for inter-band EN-DC including FR2 (7 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.2.6 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.2\_1.6.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.6.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 7 NR UL CCs.

#### 6.4B.2.4.2 1.6.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.2.3.

## 6.4B.2.4.2\_1.6.4 Test Description

## 6.4B.2.4.2\_1.6.4.1 Initial conditions

Same test description as in clause 6.4A.2.2.6.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.2.6.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.2.6.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.2.6.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.2\_1.6.5 Test Requirement

Same test requirement as in clause 6.4A.2.2.6.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.7 Carrier Leakage for inter-band EN-DC including FR2 (8 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.2.7 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.2\_1.7.1 Test purpose

Same test purpose as in clause 6.4.2.2 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.2\_1.7.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 8 NR UL CCs.

## 6.4B.2.4.2\_1.7.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.2.3.

## 6.4B.2.4.2\_1.7.4 Test Description

#### 6.4B.2.4.2 1.7.4.1 Initial conditions

Same test description as in clause 6.4A.2.2.7.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.4A.2.2.7.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.2.7.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.2.7.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.2\_1.7.5 Test Requirement

Same test requirement as in clause 6.4A.2.2.7.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4.2.3 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.
- 38.101-2 [3] clause 6.3.4.3: Relative power tolerances are in square brackets.

#### 6.4B.2.4.3.1 Test purpose

Same test purpose as in clause 6.4.2.3 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.4B.2.4.3.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], TS 38.101-1 [2] and TS 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

6.4B.2.4.3.4 Test description

6.4B.2.4.3.4.1 Initial conditions

Same test description as in clause 6.4.2.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4.2.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.3.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.3.5 Test requirement

Same test requirement as in clause 6.4.2.3.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.3D In-band Emissions for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4D.2.3 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS and Annex F needs to be updated.

## 6.4B.2.4.3D.1 Test purpose

Same test purpose as in clause 6.4D.2.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.3D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 and UL MIMO.

## 6.4B.2.4.3D.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], TS 38.101-1 [2] and TS 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4D.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

6.4B.2.4.3D.4 Test description

6.4B.2.4.3D.4.1 Initial conditions

Same test description as in clause 6.4D.2.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4D.2.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4D.2.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4D.2.3.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.2.4.3D.5 Test requirement

Same test requirement as in clause 6.4D.2.3.5 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.3\_1 In-band Emissions for inter-band EN-DC including FR2 (>1 NR CC)

# 6.4B.2.4.3\_1.1 In-band Emissions for inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.3.1 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.
- This test is incomplete due to lack of RRC framework for LO position retrieval.

## 6.4B.2.4.3 1.1.1 Test purpose

Same test purpose as in clause 6.4.2.3 in TS 38.521-2 [9] for the NR carrier.

## 6.4B.2.4.3\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2NR UL CCs.

# 6.4B.2.4.3\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.3.3.

### 6.4B.2.4.3\_1.1.4 Test description

#### 6.4B.2.4.3\_1.1.4.1 Initial conditions

Same test description as in clause 6.4A.2.3.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4A.2.3.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.3.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.3.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.4B.2.4.3\_1.1.5 Test requirement

Same test requirement as in clause 6.4A.2.3.1.5 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.3\_1.2 In-band Emissions for inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.3.2 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.3\_1.2.1 Test purpose

Same test purpose as in clause 6.4.2.3 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.3\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3NR UL CCs.

## 6.4B.2.4.3\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.3.3.

## 6.4B.2.4.3\_1.2.4 Test description

## 6.4B.2.4.3\_1.2.4.1 Initial conditions

Same test description as in clause 6.4A.2.3.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4A.2.3.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.3.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.3.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.4B.2.4.3\_1.2.5 Test requirement

Same test requirement as in clause 6.4A.2.3.2.5 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.3 1.3 In-band Emissions for inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4A.2.3.3 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

#### 6.4B.2.4.3\_1.3.1 Test purpose

Same test purpose as in clause 6.4.2.3 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.3 1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

## 6.4B.2.4.3\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.4B.2.4.3.3.

#### 6.4B.2.4.3 1.3.4 Test description

## 6.4B.2.4.3\_1.3.4.1 Initial conditions

Same test description as in clause 6.4A.2.3.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4A.2.3.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4A.2.3.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4A.2.3.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.3\_1.3.5 Test requirement

Same test requirement as in clause 6.4A.2.3.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4.2.4 in TS 38.521-2 [9] is incomplete.
- Measurement Uncertainty and Test Tolerance are FFS.

## 6.4B.2.4.4.1 Test purpose

Same test purpose as in clause 6.4.2.4 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

## 6.4B.2.4.4.3 Minimum conformance requirements

For inter-band EN-DC including FR2 or both FR1 and FR2, transmit modulation quality for EN-DC operations in FR1 and FR2 as specified in TS 36.101 [5], TS 38.101-1 [2] and TS 38.101-2 [3] apply for E-UTRA, NR FR1 and NR FR2 respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4.2.4.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.4B.2.4.4.4 Test description

# 6.4B.2.4.4.4.1 Initial conditions

Same test description as in clause 6.4.2.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4.2.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.4.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.4.5 Test requirement

Same test requirement as in clause 6.4.2.4.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.4.2.5 in TS 38.521-2 [9] is incomplete.

## 6.4B.2.4.5.1 Test purpose

Same test purpose as in clause 6.4.2.5 in TS 38.521-2 [9] for the NR carrier.

#### 6.4B.2.4.5.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.4B.2.4.5.3 Minimum conformance requirements

Transmit modulation quality requirement for E-UTRA single carrier and CA operation specified in clauses 6.5.2 and 6.5.2A of TS 36.101 [4] and for NR single carrier, CA operation and UL-MIMO specified in clause 6.4.2, 6.4A.2 and 6.4D.2 of TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

Same minimum conformance requirements as in clause 6.4.2.5.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 6.4B.2.4.5.4 Test description

## 6.4B.2.4.5.4.1 Initial conditions

Same test description as in clause 6.4.2.5.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.4.2.5.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.2.4.5.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.4.2.5.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.4B.2.4.5.5 Test requirement

Same test requirement as in clause 6.4.2.5.5 in TS 38.521-2 [9] for the NR carrier.

# 6.4E Transmit signal quality for V2X operation in FR1

# 6.4E.1 Frequency error for V2X

# 6.4E.1.0 Minimum conformance requirements

For intra-band V2X operating UE, the requirement shall apply on each component carrier as defined in clause 6.5.1G in TS 36.101 [5] and in clause 6.4E.1 in TS 38.101-1 [2], respectively.

For the inter-band con-current NR V2X operation, the requirements specified in subclause 6.4.1 of TS 36.101 [5] shall apply for the E-UTRA uplink in licensed band and the requirements specified in subclause 6.4E.1 of TS 38.101-1 [2] shall apply for the sidelink in NR Band n47.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4E.1.

# 6.4E.1.1 Frequency error for Intra-band V2X

#### 6.4E.1.1.1 Test purpose

This test verifies the ability of both, the receiver and the transmitter, to process frequency correctly.

Receiver: to extract the correct frequency from the stimulus signal, offered by the System simulator, under ideal propagation conditions and low level.

Transmitter: to derive the correct modulated carrier frequency from the results, gained by the receiver.

# 6.4E.1.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.4E.1.0. The requirements in this test case can be well covered in clause 6.5.1G of TS 36.521-1 [10] and clause 6.4E.1 of TS 38.521-1 [8] and don't need to be tested again.

# 6.4E.1.2 Frequency error for Inter-band V2X

#### 6.4E.1.2.1 Test purpose

Same test purpose as in clause 6.4E.1 in TS 38.521-1 [8].

## 6.4E.1.2.2 Test applicability

For inter-band V2X operation, no exception requirements are specified for the E-UTRA/NR Uu carrier and E-UTRA/NR SL carrier.

For inter-band V2X configuration with E-UTRA Uu and NR sidelink, the requirements in this test case can be well covered in clause 6.5.1 of TS 36.521-1 [10] for E-UTRA Uu carrier and clause 6.4E.1.1 of TS 38.521-1 [8] and don't need to be tested again.

# 6.4E.2 Transmit modulation quality for V2X

# 6.4E.2.1 Error Vector Magnitude for V2X

## 6.4E.2.1.0 Minimum conformance requirements

For intra-band V2X operating UE, the requirement shall apply on each SL transmission as defined in clause 6.5.2G.1 in TS 36.101 [5] and in clause 6.4E.2.1 in TS 38.101-1 [2], respectively.

For the inter-band con-current NR V2X operation, the requirements specified in subclause 6.5.2 of TS 36.101 [5] shall apply for the E-UTRA uplink in licensed band and the requirements specified in subclause 6.4E.2.1 of TS 38.101-1 [2] shall apply for the sidelink in NR Band n47.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4E.2.1.1.

## 6.4E.2.1.1 Error Vector Magnitude for intra-band V2X

## 6.4E.2.1.1.1 Test purpose

Same test purpose as in clause 6.4E.2 in TS 38.521-1 [8].

## 6.4E.2.1.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.4E.2.1.0. The requirements in this test case can be well covered in clause 6.5.2.1G of TS 36.521-1 [10] and clause 6.4E.2.1 of TS 38.521-1 [8] and don't need to be tested again.

## 6.4E.2.1.2 Error Vector Magnitude for Inter-band V2X

## 6.4E.2.1.2.1 Test purpose

Same test purpose as in clause 6.4E.2 in TS 38.521-1 [8].

## 6.4E.2.1.2.2 Test applicability

For inter-band V2X operation, no exception requirements are specified for the E-UTRA/NR Uu carrier and E-UTRA/NR SL carrier.

For inter-band V2X configuration with E-UTRA Uu and NR sidelink, the requirements in this test case can be well covered in clause 6.5.2.1 of TS 36.521-1 [10] for E-UTRA Uu carrier and clause 6.4E.2.2.1 of TS 38.521-1 [8] and don't need to be tested again.

# 6.4E.2.2 Carrier leakage for V2X

## 6.4E.2.2.0 Minimum conformance requirements

For intra-band V2X operating UE, the requirement shall apply on each SL transmission as defined in clause 6.5.2G.2 in TS 36.101 [5] and in clause 6.4E.2.2 in TS 38.101-1 [2], respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4E.2.2.2.

#### 6.4E.2.2.1 Carrier leakage for intra-band V2X

#### 6.4E.2.2.1.1 Test purpose

Same test purpose as in clause 6.4E.2.3.1 in TS 38.521-1 [8].

# 6.4E.2.2.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.2E.1.0. The requirements in this test case can be well covered in clause 6.5.2.2G of TS 36.521-1 [10] and clause 6.4E.2.3 of TS 38.521-1 [8] and don't need to be tested again.

## 6.4E.2.3 In-band emissions for V2X

## 6.4E.2.3.0 Minimum conformance requirements

For intra-band V2X operating UE, the requirement shall apply on each SL transmission as defined in clause 6.5.2G.3 in TS 36.101 [5] and in clause 6.4E.2.3 in TS 38.101-1 [2], respectively.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4E.2.2.3.

#### 6.4E.2.3.1 In-band emissions for intra-band V2X

## 6.4E.2.3.1.1 Test purpose

Same test purpose as in clause 6.4E.2.4.1 in TS 38.521-1 [8].

# 6.4E.2.3.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.2E.1.0. The requirements in this test case can be well covered in clause 6.5.2.3G of TS 36.521-1 [10] and clause 6.4E.2.4 of TS 38.521-1 [8] and don't need to be tested again.

# 6.5 Output RF spectrum emissions

# 6.5A Output RF spectrum emissions for CA

# 6.5A.1 Occupied bandwidth for CA without EN-DC

# 6.5A.1.1 Test purpose

Same test purpose as in clause 6.5.1 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.5.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

### 6.5A.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for occupied bandwidth apply and are tested in TS 38.521-1 [8] clauses 6.5 and 6.5A and TS 38.521-2 [9] clauses 6.5 and 6.5A.

# 6.5A.2 Out-of-band emissions for CA without EN-DC

# 6.5A.2.1 Spectrum emissions mask for CA without EN-DC

## 6.5A.2.1.1 Test purpose

Same test purpose as in clause 6.5.2.2 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.5.2.1 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.5A.2.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for additional spectrum emissions mask apply and are tested in TS 38.521-1 [8] clauses 6.5 and 6.5A and TS 38.521-2 [9] clauses 6.5 and 6.5A.

## 6.5A.2.2 Additional Spectrum emissions mask for CA without EN-DC

## 6.5A.2.2.1 Test purpose

Same test purpose as in clause 6.5.2.3 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.5.2.2 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 6.5A.2.2.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for additional spectrum emissions mask apply and are tested in TS 38.521-1 [8] clauses 6.5 and 6.5A and TS 38.521-2 [9] clauses 6.5 and 6.5A.

# 6.5A.2.3 Adjacent channel leakage ratio for CA without EN-DC

No test case details specified as there are no exception requirements applicable to NR FR1 or NR FR2 as per TS 38.101-3 [4], clause 6.5A.2. The NR/5GC requirement for ACLR applies and is tested in TS 38.521-1 [8] and TS 38.521-2 [9] for FR1 and FR2 respectively.

# 6.5A.3 Spurious emissions for CA without EN-DC

## 6.5A.3.1 Inter-band CA between FR1 and FR2

## 6.5A.3.1.1 Test purpose

Same test purpose as in clause 6.5.3 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.5.3 in TS 38.521-2 [9] for NR FR2 carrier(s).

## 6.5A.3.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for spurious emission for inter-band CA between FR1 and FR2 and UE co-existence requirements apply for each component carrier and are tested in TS 38.521-1 [8] clauses 6.5 and 6.5A and TS 38.521-2 [9] clauses 6.5 and 6.5A.

# 6.5B Output RF spectrum emissions for DC

# 6.5B.1 Occupied bandwidth for EN-DC

## 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- measurement uncertainty for ENBW > 100 MHz is FFS.

## 6.5B.1.1.1 Test purpose

To verify that the UE occupied bandwidth for intra-band contiguous EN-DC for all transmission bandwidth configurations supported by the UE are less than their specific limits.

#### 6.5B.1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

# 6.5B.1.1.3 Minimum conformance requirements

For intra-band contiguous EN-DC, the occupied bandwidth is a measure of the bandwidth containing the 99% of the total integrated power of the transmitted spectrum. The OBW shall be less than the aggregated channel bandwidth for EN-DC, denoted as EN-BW in clause 5.3B.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.5B.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

6.5B.1.1.4 Test description

#### 6.5B.1.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 6.5B.1.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.5B.1.1.4.1-1: Test configuration table

Initial Conditions					
Test Environme as specified in T	nt S 38.508-1 [6] clause 4.1	Normal			
Test Frequencie as specified in T clause 4.3.1		Mid range			
Test EN-DC bar specified in Tab	dwidth combination as e 5.3B.1.2-1	All			
Test SCS for the TS 38.521-1 [8]	NR cell as specified in Table 5.3.5-1	Lowest SCS per Channel Bandwidth			
	Test Parameters				
Test ID	Downlink	EN-DC Uplink Configuration			
	Configuration	E-UTRA Cell NR Cell			Cell
		Modulation	RB	Modulation	RB
			allocation (NOTE 2)		allocation (NOTE 1)
1	N/A for OBW testing.	QPSK	Outer_Full	CP-OFDM QPSK	Outer_Full

- the E-UTRA component as indicated in TS 36.521-1 [10] Table 5.4.2-1
- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.1.4.3.

7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

## 6.5B.1.1.4.2 Test procedure

- 1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 6.5B.1.1.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its P<sub>UMAX</sub> level; allow at least 200 ms from the first TPC command for the UE to reach P<sub>UMAX</sub> level.
- 3. Measure the power spectrum distribution over all EN-DC component carriers in the EN-DC within two times or more range over the requirement for Occupied Bandwidth specification for intra-band contiguous EN-DC centring on the current carrier frequency in the EN-DC configuration. The characteristics of the filter shall be approximately Gaussian (typical spectrum analyser filter). Other methods to measure the power spectrum distribution are allowed. The measuring duration is at least 1ms over consecutive active uplink slots.
- 4. Calculate the total power within the range of all frequencies measured in step 3 and save this value as "Total power".
- 5. Sum up the power upward from the lower boundary of the measured frequency range in step 3 and seek the limit frequency point by which this sum becomes 0.5% of "Total power" and save this point as "Lower Frequency".
- 6. Sum up the power downward from the upper boundary of the measured frequency range in step 3 and seek the limit frequency point by which this sum becomes 0.5% of "Total power" and save this point as "Upper Frequency".
- 7. Calculate the difference "Upper Frequency" "Lower Frequency" = "Occupied Bandwidth" between the two limit frequencies obtained in step 5 and step 6.

# 6.5B.1.1.4.3 Message contents

Message contents are according to TS 36.508 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

Table 6.5B.1.1.4.3-1: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8				
Information Element	Value/remark	Comment	Condition	
a Marielled and	23		Power Class 2 UE AND simultaneous E- UTRA and NR transmission	
p-MaxEUTRA-r15	20		Power Class 3 UE AND simultaneous E- UTRA and NR transmission	

Table 6.5B.1.1.4.3-2: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106				
Information Element	Value/remark	Comment	Condition	
p-NR-FR1	23		Power Class 2 UE AND simultaneous E- UTRA and NR transmission	
p-NK-FK1	20		Power Class 3 UE AND simultaneous E- UTRA and NR transmission	

Table 6.5B.1.1.4.3-4: SystemInfomationBlockType1: tdd-Config if operating on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

### 6.5B.1.1.5 Test requirements

The measured Occupied Bandwidth shall not exceed values of aggregated channel bandwidth as defined in clause 5.3B.1.2 for intra-band contiguous EN-DC.

# 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC

# 6.5B.1.2.1 Test purpose

Same test purpose as in clause 6.5.1.1 in TS 38.521-1 [8] for the NR carrier.

# 6.5B.1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

# 6.5B.1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.1.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.1.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.5B.1.2.4 Test description

Same test description as in clause 6.5.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

Table 6.5B.1.2.4-1: Test Configuration Table

Initial Cond	litions
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1.4.3 for cases with single E-UTRA carrier	Low with maxWgap (NR low – E-UTRA high)
Test Channel Bandwidths as specified in TS 38.508-1	All for NR;
[6] subclause 4.3.1.4.3	Lowest for E-UTRA

For Initial conditions as in clause 6.5.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.1.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.5.1.4.2 in TS 38.521-1 [8].

# 6.5B.1.2.5 Test requirement

Same test requirement as in clause 6.5.1.5 in TS 38.521-1 [8] for the NR carrier.

# 6.5B.1.3 Occupied bandwidth for Inter-Band EN-DC within FR1 (1 NR CC)

### 6.5B.1.3.1 Test purpose

Same test purpose as in clause 6.5.1.1 in TS 38.521-1 [8] for the NR carrier.

# 6.5B.1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

### 6.5B.1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.1.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.1.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

### 6.5B.1.3.4 Test description

Same test description as in clause 6.5.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 6.5.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.1.4.1 in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.5B.1.3.5 Test requirement

Same test requirement as in clause 6.5.1.5 in TS 38.521-1 [8] for the NR carrier.

# 6.5B.1.4 Occupied bandwidth for Inter-Band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5.1 in TS 38.521-2 [9] is incomplete for some scenarios (band, bandwidth, power class etc...) as indicated in its editor's note.

# 6.5B.1.4.1 Test purpose

Same test purpose as in clause 6.5.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

### 6.5B.1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.5B.1.4.4 Test description

### 6.5B.1.4.4.1 Initial conditions

Same test description as in clause 6.5.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.5.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.1.4.5 Test requirement

Same test requirement as in clause 6.5.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4\_1 Occupied bandwidth for Inter-band EN-DC including FR2 (>1 NR CC)

Editor's note: Test applicability, Test Description in below sub-clauses requires updates to clarify number of E-UTRA carriers that will be configured during the test that will be limited to only 1 E-UTRA CC

# 6.5B.1.4\_1.1 Occupied bandwidth for Inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.1.1 in TS 38.521-2 [9] is incomplete for some scenarios (band, aggregated bandwidth, CA configuration, power class etc...) as indicated in its editor's note.

### 6.5B.1.4 1.1.1 Test purpose

Same test purpose as in clause 6.5.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

# 6.5B.1.4\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.1.

# 6.5B.1.4\_1.1.4 Test description

### 6.5B.1.4 1.1.4.1 Initial condition

Same test description as in clause 6.5A.1.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.1.4\_1.1.5 Test Requirements

Same test requirement as in clause 6.5A.1.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4\_1.2 Occupied bandwidth for Inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.1.2 in TS 38.521-2 [9] is incomplete for some scenarios (band, aggregated bandwidth, CA configuration, power class etc...) as indicated in its editor's note.

# 6.5B.1.4 1.2.1 Test purpose

Same test purpose as in clause 6.5.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

# 6.5B.1.4\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.1.

### 6.5B.1.4\_1.2.4 Test description

# 6.5B.1.4\_1.2.4.1 Initial condition

Same test description as in clause 6.5A.1.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.1.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.1.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.1.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.1.4\_1.2.5 Test Requirements

Same test requirement as in clause 6.5A.1.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4\_1.3 Occupied bandwidth for Inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.1.1 in TS 38.521-2 [9] is incomplete for some scenarios (band, aggregated bandwidth, CA configuration, power class etc...) as indicated in its editor's note.

# 6.5B.1.4 1.3.1 Test purpose

Same test purpose as in clause 6.5.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

# 6.5B.1.4\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.1.

6.5B.1.4\_1.3.4 Test description

6.5B.1.4\_1.3.4.1 Initial condition

Same test description as in clause 6.5A.1.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.1.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.1.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.1.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.1.4\_1.3.5 Test Requirements

Same test requirement as in clause 6.5A.1.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4D Occupied bandwidth for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.5D.1 in TS 38.521-2 [9] is incomplete

# 6.5B.1.4D.1 Test purpose

Same test purpose as in clause 6.5D.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.1.4D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 UL CCs.

# 6.5B.1.4D.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5D.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

### 6.5B.1.4D.4 Test description

### 6.5B.1.4D.4.1 Initial conditions

Same test description as in clause 6.5D.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.5D.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5D.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5D.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.1.4D.5 Test requirement

Same test requirement as in clause 6.5D.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2 Out-of-band emissions for EN-DC

# 6.5B.2.1 Out-of-band emissions for Intra-band contiguous EN-DC

# 6.5B.2.1.1 Spectrum emissions mask for intra-band contiguous EN-DC

# 6.5B.2.1.1.1 Test purpose

To verify that the power of any UE emissions shall not exceed specified level for the specified aggregated bandwidth for the EN-DC intra-band contiguous.

# 6.5B.2.1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

# 6.5B.2.1.1.3 Minimum conformance requirements

The general spectrum emission for intra-band contiguous EN-DC is specified in Table 6.5B.2.1.1.3-1.

Table 6.5B.2.1.1.3-1: General spectrum emission mask for intra-band contiguous EN-DC

Δf <sub>OOB</sub> (MHz)	Spectrum emission limit (dBm)	Measurement bandwidth
± 0 – 1	Max(Round(10*log(0.15/ENBW)),-24)	30 kHz
±1-5	-10	1 MHz
± 5 – ENBW	-13	1 MHz
± ENBW – (ENBW+5)	-25	1 MHz
NOTE: ENBW	refers to the aggregated channel bandwidth in MH 5.3B	z as defined in

The normative reference for this measurement is TS 38.101-3 [4] clause 6.5B.2.1.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

6.5B.2.1.1.4 Test description

6.5B.2.1.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 6.5B.2.1.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.5B.2.1.1.4.1-1: Test configuration table

					Initial Cor	nditions			
	Environm		00.4.[0]	James 4.4	Normal	<del>-</del>			
	ecifiea in Frequenc		J8-1 [6] C	clause 4.1		I liab vanas			
				lause 4.3.1	•	High range			
specif	EN-DC ba	ble 5.3B.	1.2-1		(Note 2)	_agg, Highest N <sub>RB_a</sub>	agg		
	SCS for th			cified in	Lowest, Hig	hest			
10 00	38.521-1 [8] Table 5.3.5-1								
Test ID	Freq	ChB w	scs	Downlink Configurati	E 11	EN-DC U	olink Config	uration R Cell	Comm
וטי		W W		on	E-0	TRA Cell	IN	ik Celi	on
					Modulati on	RB allocation (Note 5)	Modulati on	RB allocation (NOTE 1)	Power config (NOTE 8)
1	Defau It				16QAM	Outer_Full	DFT-s- OFDM Pi/2 BPSK	Outer_Full	В
2 (Not e 3)	Defau It				16QAM	Outer_1RB_L eft	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Ri ght	В
3 (Not e 3)	Low				16QAM	Outer_1RB_L eft	DFT-s- OFDM Pi/2 BPSK	N/A	А
4 (Not e 3)	High				16QAM	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Ri ght	А
5 (Not e 4)	Defau It				16QAM	Outer_1RB_Ri ght	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Le ft	В
6 (Not e 4)	Low				16QAM	N/A	DFT-s- OFDM Pi/2 BPSK	Edge_1RB_Le ft	A
7 (Not e 4)	High	Defau It	Defau It	N/A	16QAM	Outer_1RB_Ri ght	DFT-s- OFDM Pi/2 BPSK	N/A	A
8	Defau It				16QAM	Outer_Full	DFT-s- OFDM QPSK	Outer_Full	В
9 (Not e 3)	Defau It				16QAM	Outer_1RB_L eft	DFT-s- OFDM QPSK	Edge_1RB_Ri ght	В
10 (Not e 3)	Low				16QAM	Outer_1RB_L eft	DFT-s- OFDM QPSK	N/A	A
11 (Not e 3)	High				16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Ri ght	A
12 (Not e 4)	Defau It				16QAM	Outer_1RB_Ri ght	DFT-s- OFDM QPSK	Edge_1RB_Le ft	В
13 (Not e 4)	Low				16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Le ft	A
14 (Not e 4)	High				16QAM	Outer_1RB_Ri ght	DFT-s- OFDM QPSK	N/A	A

4.5	l	400014	1	DET -	1	
15	Defau It	16QAM	Outer_Full	DFT-s- OFDM 16QAM	Outer_Full	В
16 (Not e 3)	Defau It	16QAM	Outer_1RB_L eft	DFT-s- OFDM 16QAM	Edge_1RB_Ri ght	В
17 (Not e 3)	Low	16QAM	Outer_1RB_L eft	DFT-s- OFDM 16QAM	N/A	Α
18 (Not e 3)	High	16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Ri ght	А
19 (Not e 4)	Defau It	16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 16QAM	Edge_1RB_Le ft	В
20 (Not e 4)	Low	16QAM	N/A	DFT-s- OFDM 16QAM	Edge_1RB_Le ft	А
21 (Not e 4)	High	16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 16QAM	N/A	Α
22	Defau It	16QAM	Outer_Full	DFT-s- OFDM 64QAM	Outer_Full	В
23 (Not e 3)	Low	16QAM	Outer_1RB_L eft	DFT-s- OFDM 64QAM	Edge_1RB_Ri ght	В
24 (Not e 4)	High	16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 64QAM	Edge_1RB_Le ft	В
25	Defau It	16QAM	Outer_Full	DFT-s- OFDM 256QAM	Outer_Full	В
26 (Not e 3)	Low	16QAM	Outer_1RB_L eft	DFT-s- OFDM 256QAM	Edge_1RB_Ri ght	В
27 (Not e 4)	High	16QAM	Outer_1RB_Ri ght	DFT-s- OFDM 256QAM	Edge_1RB_Le ft	В
28	Defau It	16QAM	Outer_Full	CP- OFDM QPSK	Outer_Full	В
29 (Not e 3)	Defau It	16QAM	Outer_1RB_L eft	CP- OFDM QPSK	Edge_1RB_Ri ght	В
30 (Not e 3)	Low	16QAM	Outer_1RB_L eft	CP- OFDM QPSK	N/A	A
31 (Not e 3)	High	16QAM	N/A	CP- OFDM QPSK	Edge_1RB_Ri ght	A
32 (Not e 4)	Defau It	16QAM	Outer_1RB_Ri ght	CP- OFDM QPSK	Edge_1RB_Le ft	В
33 (Not e 4)	Low	16QAM	N/A	CP- OFDM QPSK	Edge_1RB_Le ft	A
34 (Not e 4)	High	16QAM	Outer_1RB_Ri ght	CP- OFDM QPSK	N/A	A
35	Defau It	16QAM	Outer_Full	CP- OFDM 16QAM	Outer_Full	В
36 (Not e 3)	Defau It	16QAM	Outer_1RB_L eft	CP- OFDM 16QAM	Edge_1RB_Ri ght	В

37		160	QAM	Outer_1RB_L	CP-		Α
(Not	Low				OFDM	N/A	
e 3)				eft	16QAM		
38		160	QAM		CP-		Α
(Not	High		~	N/A	OFDM	Edge_1RB_Ri	, ,
e 3)	i ligii			14// (	16QAM	ght	
		100	2004		CP-		
39	Defau	100	MAÇ	Outer_1RB_Ri		Edge_1RB_Le	В
(Not	lt			ght	OFDM	ft -	
e 4)	.,			9	16QAM	.,	
40		160	MAG		CP-	Edge_1RB_Le	Α
(Not	Low			N/A	OFDM	-	
e 4)					16QAM	ft	
41		160	QAM		CP-		Α
(Not	High		~	Outer_1RB_Ri	OFDM	N/A	, ,
e 4)	riigii			ght	16QAM	14// \	
		100	2004		CP-		В
42	Defau	160	MAQ	0		0 ( 5 "	В
	lt			Outer_Full	OFDM	Outer_Full	
					64QAM		
43		160	MAG	Outer_1RB_L	CP-	Edge_1RB_Ri	В
(Not	Low			eft	OFDM		
e 3)				eit	64QAM	ght	
44		160	QAM		CP-		В
(Not	High		~	Outer_1RB_Ri	OFDM	Edge_1RB_Le	_
e 4)	9			ght	64QAM	ft	
45		160	QAM		CP-		В
40	Defau	100	X\\IVI	Outen Full		Outen Full	D
	lt			Outer_Full	OFDM	Outer_Full	
					256QAM		
46		160	MAQ	Outer_1RB_L	CP-	Edge_1RB_Ri	В
(Not	Low				OFDM	•	
e 3)				eft	256QAM	ght	
47		160	QAM	0 / 100 5:	CP-	E	В
(Not	High			Outer_1RB_Ri	OFDM	Edge_1RB_Le	_
e 4)	9.1			ght	256QAM	ft	
48	Dofore	100	2004	Edge Full Dia		Edge Full Let	В
	Defau	160	MAÇ	Edge_Full_Rig	CP-	Edge_Full_Lef	В
(Not	lt			ht	OFDM	t	
e 4)					256QAM		

NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].

NOTE 2: If the UE supports multiple CC combinations in the EN-DC configuration with the same N<sub>RB\_agg</sub>, select the combination to test as follows:

- Lowest ENBW: NR component with lowest N<sub>RB</sub> is tested.
- Highest ENBW: NR component with highest NRB is tested.
- NOTE 3: Applicable when E-UTRA cell carrier frequency is lower than NR cell carrier.
- NOTE 4: Applicable when NR cell carrier frequency is lower than E-UTRA cell carrier.
- NOTE 5: Outer\_Full defined as the transmission bandwidth configuration N<sub>RB</sub> per channel bandwidth for the E-UTRA component as indicated in TS 36.521 [10] Table 5.4.2-1. Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component. Edge\_Full\_Right is defined as 2 RBs allocated at the right edge of the E-UTRA component.
- NOTE 6: DFT-s-OFDM Pi/2 BPSK test applies only for UEs which supports Pi/2 BPSK in FR1
- NOTE 7: Power config as specified in Table 6.5B.2.1.2.4.3-3 (PC3) or 6.5B.2.1.2.4.3-4 (PC2).
- NOTE 8: All test points in this table must also exist in table 6.2B.2.1.4.1-1 (MPR).
- NOTE 9: Test IDs with simultaneous E-UTRA and NR UL transmission only apply for UEs indicating dualPA-Architecture.
  - 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2.1 for UE diagram.
  - 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
  - 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.

- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.2.1.1.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

### 6.5B.2.1.1.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.5B.2.1.1.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its P<sub>UMAX</sub> level; allow at least 200 ms from the first TPC command for the UE to reach P<sub>UMAX</sub> level.
- 3. For a UE supporting dynamic power sharing, measure the mean power over all component carriers. For a UE not supporting dynamic power sharing, measure the power of each component carrier individually. The measure transmitted power shall meet the requirements in clause 6.2B.2.1.5. The period of measurement shall be at least the continuous duration of 1ms over consecutive active uplink slots For TDD, only slots consisting of only UL symbols are under test.
- 4. Measure the power of the transmitted signal with a measurement filter of bandwidths according to Table 6.5B.2.1.1.5-1. The centre frequency of the filter shall be stepped in continuous steps according to the same table. The measured power shall be recorded for each step. The measurement period shall capture the active TSs.
- NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.5B.2.1.1.4.1-1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

# 6.5B.2.1.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1 with the following exceptions:

# Table 6.5B.2.1.1.4.3-1: Additional Spectrum Emission for MCG

Derivation Path: 36.508 [11] clause 4.6.3, Table 4.4.3.3-1				
Information Element	Value/remark	Comment	Condition	
AdditionalSpectrumEmission	0 (NS_01)			

### Table 6.5B.2.1.1.4.3-2: Additional Spectrum Emission for SCG

Derivation Path: 38.508-1 [5] clause 4.6.3, Table 4.6.3-1				
Information Element	Value/remark	Comment	Condition	
AdditionalSpectrumEmission	0 (NS 01)			

# Table 6.5B.2.1.1.4.3-3: PhysicalCellGroupConfig for PC3

Derivation Path: TS 38.508-1 [6], Table 4.6.3-	106		
Information Element	Value/remark	Comment	Condition
p-NR-FR1	23		Power config A (NOTE 1)
	20		Power config B (NOTE 2)
NOTE 1: Applies when E-UTRA UL transmis NOTE 2: Applies when E-UTRA UL transmis			

# Table 6.5B.2.1.1.4.3-4: RRCConnectionReconfiguration: nr-Config-r15 for PC3

Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	23		Power config A (NOTE 1)
	20		Power config B (NOTE 2)
NOTE 1: Applies when E-UTRA UL trans NOTE 2: Applies when E-UTRA UL trans			).

# Table 6.5B.2.1.1.4.3-5: PhysicalCellGroupConfig for PC2

Information Element	Value/remark	Comment	Condition
o-NR-FR1	26		Power config A (NOTE 1)
	23		Power config B (NOTE 2)

# Table 6.5B.2.1.1.4.3-6: RRCConnectionReconfiguration: nr-Config-r15 for PC2

	Comment	Condition
26		Power config A (NOTE 1)
23		Power config B (NOTE 2)
	23	

Table 6.5B.2.1.1.4.3-7: RRCConnectionReconfiguration: tdm-PatternConfig if operating on FDD band

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
tdm-PatternConfig-r15 ::= CHOICE{			Power config A (NOTE 1)
setup :: = SEQUENCE {		Apply if operating on FDD band for a UE NOT indicating support of dynamicPowerSharing in the <i>UE-MRDC-Capability</i> IE according to TS 38.213 [x] clause 7.6.1	
subframeAssignment-r15	sa2		
harq-Offset-r15	0		
}			
}			
NOTE 1: Applies when E-UTRA UL transmission no	t overlapping with	NR UL transmission in time.	·

Table 6.5B.2.1.1.4.3-8: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD	
		band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

# 6.5B.2.1.1.5 Test requirements

The power of any UE emissions shall fulfil requirements in Table 6.5B.2.1.1.5-1.

Table 6.5B.2.1.1.5-1: General spectrum emission mask for intra-band contiguous EN-DC

Δf <sub>OOB</sub> (MHz)	Spectrum emission limit (dBm)	Measurement bandwidth				
± 0 - 1	Max(Round(10*log(0.15/ENBW)),-24)	30 kHz				
±1-5	-10 + TT	1 MHz				
± 5 - ENBW	-13 + TT	1 MHz				
± ENBW – (ENBW+5)	-25 + TT	1 MHz				
NOTE: ENBW refers to the aggregated channel bandwidth in MHz as defined in clause 5.3B.						

Table 6.5B.2.1.1.5-2: Test Tolerance (Spectrum Emission Mask)

f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
1.5 dB	1.8 dB	1.8 dB

# 6.5B.2.1.2 Additional spectrum emissions mask for intra-band contiguous EN-DC

# 6.5B.2.1.2.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to other channels or other systems in terms of transmitter spurious emissions under the deployment scenarios where additional requirements are specified.

#### 6.5B.2.1.2.2 Test applicability

This test case applies to all types of E-UTRA power class 3 and power class 2 UE release 15 and forward, supporting intra-band contiguous EN-DC.

#### 6.5B.2.1.2.3 Minimum conformance requirements

#### 6.5B.2.1.2.3.1 Minimum requirement for network signalled value "NS\_35"

For contiguous intra-band EN-DC configuration of DC (n)71AA when NS 35 is indicated for the UE the requirements in table 6.5B.2.1.2.3-1 apply in the frequency ranges immediately adjacent and outside the aggregation of the said subblocks

When NS\_35 is indicated in the MCG and NS\_35 is indicated in the SCG the requirements in table 6.5B.2.1.2.3.1-1 apply in the frequency ranges immediately adjacent and outside the aggregated sub-blocks of the EN-DC configuration for DC (n)71AA.

Table 6.5B.2.1.2.3.1-1: Additional requirements

	Frequency offset of measurement filter centre frequency, f_offset	Minimum requirement (dBm)	Measurem ent bandwidth		
$0 \text{ MHz} \leq \Delta f < 0.1 \text{ MHz}$	0.015 MHz ≤ f_offset < 0.085 MHz	-13	30 kHz		
$0.1 \text{ MHz} \leq \Delta f < \text{ENBW}$	0.15 MHz ≤ f_offset < ENBW-0.05 MHz	-13	100 kHz		
ENBW ≤ Δf < ENBW +5 MHz	ENBW + 0.5 MHz ≤ f_offset < ENBW + 4.5 MHz	-25	1 MHz		
NOTE: ENBW is the aggregated bandwidth of an E-UTRA sub-block and an adjacent NR sub-block; there is no					

ency separation between the said sub-blocks. The sub-block bandwidths include any internal guard bands.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.1.2.1.

Exception requirements for both NR and E-UTRA are defined for this test when transmission on E-UTRA overlap in time with NR.LTE and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

Exception requirements for both NR and E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR, for a UE that doesn't support dynamic power sharing. LTE anchor agnostic approach is not applied for this case. E-UTRA test point analysis is included and E-UTRA measurements are performed.

No exception requirements for NR or E-UTRA are defined for this test when transmission on E-UTRA doesn't overlap in time with NR, for a UE that supports dynamic power sharing. LTE anchor agnostic approach is not applied for this case.

#### Minimum requirement for network signalled value "NS\_04" 6.5B.2.1.2.3.2

Additional spectrum emission requirements are signalled by the network to indicate that the UE shall meet an additional requirement for a specific deployment scenario as part of the cell handover/broadcast message.

The Band 41/n41 SEM transition point from -13 dBm/MHz to -25 dBm/MHz is based on the emission bandwidth. The emission bandwidth is defined as the width of the signal between two points, one below the carrier centre frequency and one above the carrier centre frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Since the 26 dB emission bandwidth is implementation dependent, the transmission bandwidths occupied by RBs is used for the SEM. The emission bandwidth for LTE carriers is document in TS 36.101 [5], and the emission bandwidth for NR carriers is documented in TS 38.101-1 [2]. The total emission bandwidth for contiguous intra-band EN-DC is the sum of the emission bandwidth for each CC plus the guard band between contiguous CCs.

When "NS\_04" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5B.2.1.2.3.2-1.

Table 6.5B.2.1.2.3.2-1: n41 SEM with NS\_04

	Spectrum emission limit (dBm)/ measurement bandwidth for each channel bandwidth						
ΔfOOB MHz	10 MHz	15 MHz	20 MHz	40 MHz	50 MHz	> 50 MHz	Measurement bandwidth
± 0 - 1	-18	-20	-21	-24	-2	25	30 kHz
±1-5			-1	10			
± 5 - X		-13			1 MHz		
± X - (BWChannel + 5 MHz)		•	-2	25			

NOTE 1: X is defined as the sum of the emission bandwidth of the component carriers plus the guard band between contiguous CCs.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.1.2.2.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

6.5B.2.1.2.4 Test description

# 6.5B.2.1.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in test configuration table 6.2B.3.1.4.1-1 through 6.2B.3.1.4.1-2. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.5B.2.1.2.4.1-0: E-UTRA test configuration table

E-UTRA Test Parameters							
E-UTRA Channel	Upli	nk					
Bandwidth	(Note 1)	N/A for A-MPR	Modulation	RB allocation			
20 MHz	Low range and High range (Note 2)	testing.	QPSK	100			
	NOTE 1: E-UTRA Test Frequency as specified in TS 36.508 [6] clause 4.3.1  NOTE 2: NR carrier shall be the outermost carrier during test.						

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.2.1 for SS diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. NR downlink signals are initially set up according to Annex C.0, C.1, and C.2 and uplink signals according to Annex G.0, G.1, G.2, and G.3.0 of TS 38.521-1 [8].

- 5. The UL Reference Measurement channels are set according to TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG link and NR CG link respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG link and NR CG link respectively.
- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.5B.2.1.2.4.3.
- 8. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

# 6.5B.2.1.2.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 6.2B.3.1.4.1-1 on both EN-DC component carriers. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command starting from the first TPC command in this step for the UE to reach  $P_{UMAX}$  level.
- 3. Measure the mean power over all component carriers for the EN-DC configuration, which shall meet the requirements described in table 6.5B.2.1.2.5.1-1 through to 6.5B.2.1.2.5.2-1. The period of the measurement shall be at least the continuous duration of one active sub-frame (1ms).
- 4. Measure the power of the transmitted signal with a measurement filter of bandwidths according to table 6.5B.2.1.2.5-1 through to 6.5B.2.1.2.5.2-1. The centre frequency of the filter shall be stepped in contiguous steps according to the same table. The measured power shall be recorded for each step. The measurement period shall capture the active time slots.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration table 6.2B.3.1.4.1-2, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

# 6.5B.2.1.2.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1, with the following exceptions.

# Table 6.5B.2.1.2.4.3-1: PhysicalCellGroupConfig for PC3

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106							
Information Element	Value/remark	Comment	Condition				
n ND FD4	23		Power config A (NOTE 1)				
p-NR-FR1	20		Power config B (NOTE 2)				
NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.  NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.							

Table 6.5B.2.1.2.4.3-1: RRCConnectionReconfiguration: nr-Config-r15 for PC3

Information Element	Value/remark	Comment	Condition
M. FUTDA 45	23		Power config A (NOTE 1)
p-MaxEUTRA-r15	20		Power config B (NOTE 2)
P-Max	23		
P-IVIAX	20		

# Table 6.5B.2.1.2.4.3-3: PhysicalCellGroupConfig for PC2

Derivation Path: TS 38.508-1 [6], Table 4.6.3-106							
Information Element	Value/remark	Comment	Condition				
p-NR-FR1	26		Power config A (NOTE 1)				
	23		Power config B (NOTE 2)				
	NOTE 1: Applies when E-UTRA UL transmission not overlapping with NR UL transmission in time.  NOTE 2: Applies when E-UTRA UL transmission overlapping with NR UL transmission in time.						

# Table 6.5B.2.1.2.4.3-4: RRCConnectionReconfiguration: nr-Config-r15 for PC2

Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	26		Power config A (NOTE 1)
	23		Power config B (NOTE 2)

# Table 6.5B.2.1.2.4.3-5: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23				
Information Element		Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {			Operating on TDD	
			band	
subframeAssignment	sa2			
specialSubframePatterns	ssp7			
}				

6.5B.2.1.2.4.3.1 Message contents exceptions for network signalled value "NS\_35"

For "NS\_35" see A-MPR test case in table 6.2B.3.1.4.3.2-1 and table 6.2B.3.1.4.3.2-2.

6.5B.2.1.2.4.3.2 Message contents exceptions for network signalled value "NS\_04"

For "NS\_04" see A-MPR test case in table 6.2B.3.1.4.3.1-1 and table 6.2B.3.1.4.3.1-2.

# 6.5B.2.1.2.5 Test requirement

# 6.5B.2.1.2.5-1: Test Tolerance (Additional Spectrum Emission Mask)

f ≤ 3.0GHz	3.0GHz < f ≤ 4.2GHz	4.2GHz < f ≤ 6.0GHz
1.5 dB	1.8 dB	1.8 dB

# 6.5B.2.1.2.5.1 Test requirement for network signalled value "NS\_35"

When "NS\_35" is indicated in the cell measured UE mean power in the channel bandwidth, derived in step 3, shall fulfil requirements in table 6.2B.3.1.5.1-1, and the power of any UE shall not exceed the described values in table 6.5B.2.1.2.5.1-1. The requirements in the table apply in the frequency ranges immediately adjacent and outside the aggregation of the sub-blocks.

Table 6.5B.2.1.2.5.1-1: Additional requirements for "NS\_35"

Δfоов	Frequency offset of measurement filter centre frequency, f_offset	Minimum requirement [dBm]	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.1 \text{ MHz}$	0.015 MHz ≤ f_offset < 0.085 MHz	-13+TT	30 kHz
$0.1 \text{ MHz} \leq \Delta f < \text{ENBW}$	0.15 MHz ≤ f_offset < ENBW – 0.05 MHz	-13+TT	100 kHz
ENBW $\leq \Delta f < ENBW + 5 MHz$	ENBW + 0.5 MHz ≤ f_offset < ENBW + 4.5 MHz	-25+TT	1 MHz

NOTE: ENBW is the aggregated bandwidth of an E-UTRA sub-block and an adjacent NR sub-block; there is no frequency separation between the said sub-blocks. The sub-block bandwidths include any internal guard bands.

# 6.5B.2.1.2.5.2 Test requirement for network signalled value "NS 04"

When "NS\_04" is indicated in the cell measured UE mean power in the channel bandwidth, derived in step 3, shall fulfil requirements in tables 6.2B.3.1.5.2-1, and the power of any UE shall not exceed the described values in table 6.5B.2.1.2.5.2-1. The requirements in the table apply in the frequency ranges immediately adjacent and outside the aggregation of the sub-blocks.

Table 6.5B.2.1.2.5.2-1: Additional requirements for n41 SEM with NS\_04

	Spectrum emission limit (dBm)/ measurement bandwidth for each channel bandwidth						
Δfooв MHz	10 MHz	15 MHz	20 MHz	40 MHz	50 MHz	> 50 MHz	Measurement bandwidth
± 0 - 1	-18+TT	-20+TT	-21+TT	-24+TT	-25	+TT	30 kHz
±1-5		-10+TT					
± 5 - X	-13+TT 1 MHz -25+TT		1 MHz				
± X - (BWChannel + 5 MHz)							

NOTE 1: X is defined as the sum of the emission bandwidth of the component carriers plus the guard band between contiguous CCs.

# 6.5B.2.1.3 Adjacent channel leakage ratio for intra-band contiguous EN-DC

# 6.5B.2.1.3.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to adjacent channels in terms of Adjacent Channel Leakage Power Ratio (ACLR).

# 6.5B.2.1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

# 6.5B.2.1.3.3 Minimum conformance requirements

For EN-DC operation with an E-UTRA sub-block immediately adjacent to an NR sub-block, the ACLR is defined as the ratio of the filtered mean power centred on the aggregated sub-block bandwidth ENBW to the filtered mean power centred on an adjacent bandwidth of the same size ENBW at nominal channel spacing. The UE shall meet the ACLR minimum requirement EN-DC<sub>ACLR</sub> specified in Table 6.5B.2.1.3.3-1 with ENBW the sum of the sub-block bandwidths.

The assigned channel power and adjacent channel power are measured with rectangular filters with measurement bandwidths specified in 6.5B.2.1.3.3-1.

Table 6.5B.2.1.3.3-1: ACLR for intra-band EN-DC (contiguous sub-blocks)

Parameter	Unit	Value
EN-DC <sub>ACLR</sub> for PC3	dBc	30
EN-DC <sub>ACLR</sub> for PC2	dBc	31
Measurement bandwidth of EN-DC channel		1.00*ENBW
Measurement bandwidth of adjacent channel		0.95*ENBW
Frequency offset of adjacent channel		ENBW / -ENBW
NOTE 1: ENBW is the aggregated bandwidth in MHz as defined in clause 5.3B.  NOTE 2: The frequency offset is that in between the centre frequencies of		

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.1.3.

the measurement filters

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

### 6.5B.2.1.3.4 Test description

# 6.5B.2.1.3.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in test configuration tables defined in section 6.2B.2.1.4.1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.5B.2.1.3.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

# 6.5B.2.1.3.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to test configuration tables defined in section 6.2B.2.1.4.1 on both EN-DC component carriers. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200ms for the UE to reach  $P_{UMAX}$  level.
- 3. Measure the mean power of the UE in the channel bandwidth of the radio access mode according to the test configuration, which shall meet the requirements in clause 6.2B.2.1.5 as appropriate. The period of the measurement shall be at least the continuous duration of 1ms over consecutive active uplink slots. For TDD, only slots consisting of only UL symbols are under test.
- 4. Measure the filtered mean power of the transmitted signal centred on the aggregated sub-block ENBW with a measurement filter of bandwidth according to test configuration tables defined in section 6.2B.2.1.4.1. The period of the measurement shall be at least the continuous duration of 1ms over consecutive active uplink slots For TDD, only slots consisting of only UL symbols are under test.
- 5. Measure the filtered mean power of the first adjacent channel on both lower and upper side of the assigned NR + E-UTRA channel, respectively with a frequency offset and measurement filter of bandwidth according to test configuration tables defined in section 6.2B.2.1.4.1.
- 6. Calculate the ratios of the power between the values measured in step 3 over step 4 for lower and upper side respectively.
- NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration tables defined in section 6.2B.2.1.4.1, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

# 6.5B.2.1.3.4.3 Message contents

Same message contents as in clause 6.2B.2.1.4.3.

### 6.5B.2.1.3.5 Test requirement

The measured adjacent channel power ratio, derived in step 6, shall be higher than the limits in Table 6.5B.2.1.3.5-1.

Table 6.5B.2.1.3.5-1: ACLR requirement for intra-band EN-DC (contiguous sub-blocks)

	Power class 2	Power class 3	
NR ACLR	31 - TT dBc	30 - TT dBc	
NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.5B.2.1.3.5-2.			

Table 6.5B.2.1.3.5-2: Test Tolerance

	f ≤ 4.0GHz	4.0GHz < f ≤ 6.0GHz
BW ≤ 100MHz	0.8 dB	1.0 dB

# 6.5B.2.2 Out-of-band emissions for Intra-band non-contiguous EN-DC

# 6.5B.2.2.1 Spectrum emissions mask for intra-band non-contiguous EN-DC

### 6.5B.2.2.1.1 Test purpose

To verify that the power of any UE emissions shall not exceed specified level for the specified channel bandwidth.

# 6.5B.2.2.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

### 6.5B.2.2.1.3 Minimum conformance requirements

The spectral emission mask for intra-band non-contiguous EN-DC is a composite of the emission mask for each CC with the level set to the maximum value from each mask for each frequency outside of the transmission bandwidth of either carrier. A composite spectrum emission mask is a combination of individual CC spectrum emissions masks. Where two masks overlap the most relaxed limit is used. Composite spectrum emission mask applies to frequencies up to  $\pm \Delta f_{OOB}$  starting from the edges of the sub-blocks. If for some frequency an individual CC spectrum emission mask overlaps with the bandwidth of another CC then the emission mask does not apply for that frequency.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.2.1.

The spectral emission mask for intra-band non-contiguous EN-DC is a composite of the emission mask for each CC with the level set to the maximum value from each mask and therefore LTE anchor agnostic approach is not applied.

### 6.5B.2.2.1.4 Test description

# 6.5B.2.2.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in TS 38.508-1 [6] clause 4.3.1.4.3, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in TS 38.508-1 [6] clause 4.3.1.4.3 and are shown in Table 6.5B.2.2.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

### Table 6.5B.2.2.1.4.1-1: Test Configuration Table

Initial Conditions and Test Parameters		
Same as defined in Table 6.2B.2.2.4.1-1 with the following exceptions.		
Test Environment as specified	Normal	
in TS 38.508-1 [5] subclause		
4.1		

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for TE diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.

- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.3.2.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

### 6.5B.2.2.1.4.2 Test Procedure

- 1. For NR carrier, SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.5B.2.2.1.4.1-1. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. For E-UTRA carrier, SS sends uplink scheduling information via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to Table 6.5B.2.2.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 3. Send continuously uplink power control "up" commands to the UE for NR and E-UTRA carrier until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms from the first TPC command starting in this step for the UE to reach  $P_{UMAX}$  level.
- 4. For a UE supporting dynamic power sharing, measure the mean power over all component carriers. For a UE not supporting dynamic power sharing, measure the power of each component carrier individually. The measure transmitted power shall meet the requirements in clause 6.2B.2.2.5. The period of the measurement shall be at least the continuous duration of one active sub-frame (1ms). For TDD slots with transient periods are not under test.
- 5. Measure the power of the transmitted signal with a measurement filter of bandwidths according to clause 6.5B.2.2.1.5. The centre frequency of the filter shall be stepped in continuous steps according to the same table. The measured power shall be recorded for each step. The measurement period shall capture the active TSs. If for some frequency an individual CC spectrum emission mask overlaps with the bandwidth of another CC then the emission mask does not apply for that frequency.
- NOTE 1: When switching to DFT-s-OFDM waveform, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

# 6.5B.2.2.1.4.3 Message Content

Same message contents as in clause 6.2B.2.2.4.3.

# 6.5B.2.2.1.5 Test requirement

- -For NR carrier frequency masks not overlapping with E-UTRA carrier frequency masks, the power of any UE emission shall fulfil requirements in Table 6.5.2.2.5-1 defined in TS 38.521-1 [8].
- -For E-UTRA carrier frequency masks not overlapping with NR carrier frequency masks, the power of any UE emission shall fulfil requirements in Table 6.6.2.1.5-1 or 6.6.2.1.5-2 in TS 36.521-1 [10], as applicable.
- -For NR carrier frequency masks overlapping with E-UTRA carrier frequency masks, the most relaxed limit is used between requirements in Table 6.5.2.2.5-1 defined in TS 38.521-1 [8] and Table 6.6.2.1.5-1 or 6.6.2.1.5-2 in TS 36.521-1 [10], as applicable.

# 6.5B.2.2.2 Additional Spectrum emissions mask for intra-band non-contiguous EN-DC

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

For Wgap < NR  $\Delta$ fOOB + E-UTRA  $\Delta$ fOOB, test description and test requirements are FFS.

# 6.5B.2.2.2.1 Test purpose

Same test purpose as in clause 6.5.2.3 in TS 38.521-1 [8] for the NR carrier.

6.5B.2.2.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

### 6.5B.2.2.2.3 Minimum conformance requirements

The spectral emission mask for intra-band non-contiguous EN-DC is a composite of the emission mask for each CC with the level set to the maximum value from each mask for each frequency outside of the transmission bandwidth of either carrier. A composite spectrum emission mask is a combination of individual CC spectrum emissions masks. Where two masks overlap the most relaxed limit is used. Composite spectrum emission mask applies to frequencies up to  $\pm \Delta f_{OOB}$  starting from the edges of the sub-blocks. If for some frequency an individual CC spectrum emission mask overlaps with the bandwidth of another CC then the emission mask does not apply for that frequency.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.2.2.

No exception requirements applicable to NR or E-UTRA when Wgap > NR  $\Delta f_{OOB}$  + E-UTRA  $\Delta f_{OOB}$ . LTE anchor agnostic approach is applied when Wgap > NR  $\Delta f_{OOB}$  + E-UTRA  $\Delta f_{OOB}$ .

Exception requirements for both NR and E-UTRA are defined for this test when Wgap < NR  $\Delta f_{OOB}$  + E-UTRA  $\Delta f_{OOB}$  and therefore LTE anchor agnostic approach is not applied when Wgap < NR  $\Delta f_{OOB}$  + E-UTRA  $\Delta f_{OOB}$ .

# 6.5B.2.2.2.4 Test description

For Wgap > NR  $\Delta f_{OOB}$  + E-UTRA  $\Delta f_{OOB}$ :

Same test description as in clause 6.5.2.3.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.5.2.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.2.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.5.2.3.4.2 in TS 38.521-1 [8] with the following steps exception:

3. Measure the mean power of the UE in the channel bandwidth of the radio access mode according to the test configuration. The period of the measurement shall be at least the continuous duration of 1ms over consecutive active uplink slots. For TDD, only slots consisting of only UL symbols are under test.

For Wgap < NR  $\Delta f_{OOB} + E$ -UTRA  $\Delta f_{OOB}$ :

FFS.

### 6.5B.2.2.2.4.3 Message Content

Message contents are according to TS 36.508-1 [11] clause 4.6 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

# Table 6.5B.2.2.2.4.3-1: RRCConnectionReconfiguration: nr-Config-r15 when Wgap < NR $\Delta f_{OOB}$ + E-UTRA $\Delta f_{OOB}$

Derivation Path: TS 36.508 [11], Table 4.6.1-8			
Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	23		Power Class 2 UE
p-iviaxe01RA-i15	20		Power Class 3 UE

# Table 6.5B.2.2.2.4.3-2: PhysicalCellGroupConfig when Wgap < NR $\Delta f_{OOB}$ + E-UTRA $\Delta f_{OOB}$

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106			
Information Element	Value/remark	Comment	Condition
p-NR-FR1	23		Power Class 2 UE
p-NK-FK1	20		Power Class 3 UE

# Table 6.5B.2.2.2.4.3-3: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band when Wgap < NR Δf<sub>OOB</sub> + E-UTRA Δf<sub>OOB</sub>

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

# 6.5B.2.2.2.5 Test requirement

For Wgap > NR  $\Delta f_{OOB}$  + E-UTRA  $\Delta f_{OOB}$ :

Power of any UE emission shall fulfil requirements in Table 6.5.2.3.5-1 defined in TS 38.521-1 [8] for the NR carrier.

For Wgap < NR  $\Delta f_{OOB} +$  E-UTRA  $\Delta f_{OOB}$ :

FFS.

### 6.5B.2.2.3 Adjacent channel leakage ratio for intra-band non-contiguous EN-DC

# 6.5B.2.2.3.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to adjacent channels in terms of Adjacent Channel Leakage power Ratio (ACLR).

### 6.5B.2.2.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

# 6.5B.2.2.3.3 Minimum conformance requirements

For intra-band non-contiguous EN-DC, the EN-DC Adjacent Channel Leakage power Ratio (EN-DC<sub>ACLR</sub>) is the ratio of the sum of the filtered mean powers centred on the assigned E-UTRA and NR sub-block frequencies to the filtered mean power centred on an adjacent channel frequency at nominal channel spacing. In case the sub-block gap bandwidth Wgap is smaller than an E-UTRA or NR sub-block bandwidth, no EN-DC<sub>ACLR</sub> requirement is set for the corresponding sub-block for the gap. The assigned EN-DC sub-block power and adjacent channel power are measured with rectangular filters with measurement bandwidths specified in TS 36.101 [5] for the E-UTRA sub-block, and TS 38.101-1 [2] for the NR sub-block. If the measured adjacent channel power is greater than –50dBm then the EN-DC<sub>ACLR</sub> shall be higher than the value specified in for E-UTRA<sub>ACLR</sub> and NR<sub>ACLR</sub>.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.2.3.

Adjacent Channel Leakage power Ratio must be measured for both NR and E-UTRA and therefore LTE anchor agnostic approach is not applied.

6.5B.2.2.3.4 Test description

6.5B.2.2.3.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in TS 38.508-1 [6] clause 4.3.1.4.3, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in TS 38.508-1 [6] clause 4.3.1.4.3 and are shown in Table 6.5B.2.2.3.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

# Table 6.5B.2.2.3.4.1-1: Test Configuration Table

Initial Conditions and Test Parameters
Same as defined in Table 6.2B.2.2.4.1-1

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for TE diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.3.2.4.3.
- 7. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

# 6.5B.2.2.3.4.2 Test Procedure

- 1. For NR carrier, SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.5B.2.2.3.4.1-1. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. For E-UTRA carrier, SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to Table 6.5B.2.2.3.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 3. Send continuously power control "up" commands to the UE for NR and E-UTRA until the UE transmits at  $P_{UMAX}$  level. Allow at least 200ms for the UE to reach  $P_{UMAX}$  level.

- 4. Measure the mean power of the UE in the channel bandwidth of the radio access mode according to the test configuration, which shall meet the requirements in clause 6.2B.2.2.5 as appropriate. The period of the measurement shall be at least the continuous duration of 1ms over consecutive active uplink slots. For TDD, only slots consisting of only UL symbols are under test.
- 5. Measure the rectangular filtered mean power for the assigned NR channel.
- Measure the rectangular filtered mean power of the first NR adjacent channel on both lower and upper side of
  the assigned NR channel, respectively. Skip the measurement within the Wgap in case Wgap < NR sub-block
  bandwidth.</li>
- 7. Calculate the ratios of the power between the values measured in step 4 over step 5 for lower and upper NR <sub>ACLR</sub>, respectively.
- 8. Measure the rectangular filtered mean power for E-UTRA channel.
- Measure the rectangular filtered mean power of the first E-UTRA adjacent channel on both lower and upper side
  of the E-UTRA channel, respectively. Skip the measurement within the Wgap in case Wgap < E-UTRA subblock bandwidth.</li>
- 10. Calculate the ratios of the power between the values measured in step 7 over step 8 for lower and upper E-UTRA<sub>ACLR</sub>, respectively.
- NOTE 1: When switching to DFT-s-OFDM waveform, send an NR RRCReconfiguration message according to TS 38.508-1 [6] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

### 6.5B.2.2.3.4.3 Message Content

Same message contents as in clause 6.2B.2.2.4.3.

### 6.5B.2.2.3.5 Test requirement

For NR ACLR, if the measured adjacent channel power is greater than -50 dBm then the measured NR ACLR shall be higher than the limits in Table 6.5.2.4.1.5-2 defined in clause 6.5.2.4.1.5 in TS 38.521-1 [8] for the NR carrier.

For E-UTRA ACLR, if the measured adjacent channel power is greater than -50 dBm then the measured E-UTRA ACLR shall be higher than the limits in Table 6.6.2.3.5.1-1 defined in clause 6.6.2.3.5 in TS 36.521-1 [10] for the E-UTRA carrier.

# 6.5B.2.3 Out-of-band emissions for Inter-band EN-DC within FR1

# 6.5B.2.3.1 Spectrum emissions mask for Inter-band EN-DC within FR1 (1 NR CC)

# 6.5B.2.3.1.1 Test purpose

Same test purpose as in clause 6.5.2.2 in TS 38.521-1 [8] for the NR carrier.

### 6.5B.2.3.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

# 6.5B.2.3.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.2.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.5B.2.3.1.4 Test description

Same test description as in clause 6.5.2.2.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.For Initial conditions as in clause 6.5.2.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.2.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.5B.2.3.1.5 Test requirement

Power of any UE emission shall fulfil requirements in Table 6.5.2.2.5-1 defined in TS 38.521-1 [8] for the NR carrier.6.5B.2.3.2.

# 6.5B.2.3.2 Additional Spectrum emissions mask for Inter-band EN-DC within FR1 (1 NR CC)

# 6.5B.2.3.2.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-1 [8] for the NR carrier.

# 6.5B.2.3.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

# 6.5B.2.3.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.5B.2.3.2.4 Test description

Same test description as in clause 6.5.2.3.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.5.2.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.2.3.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.5B.2.3.2.5 Test requirement

Power of any UE emission shall fulfil requirements in applicable table from Table 6.5.2.3.5-1 to Table 6.5.2.3.5.2-1 defined in TS 38.521-1 [8] for the NR carrier.

# 6.5B.2.3.3 Adjacent channel leakage ratio for inter-band EN-DC within FR1 (1 NR CC)

6.5B.2.3.3.1 NR - Adjacent channel leakage ratio for inter-band EN-DC within FR1 (1 NR CC)

# 6.5B.2.3.3.1.1 Test purpose

Same test purpose as in clause 6.5.2.4.1.1 in TS 38.521-1 [8].

### 6.5B.2.3.3.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

# 6.5B.2.3.3.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.4.1.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied

# 6.5B.2.3.3.1.4 Test description

Same test description as in clause 6.5.2.4.1.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.5.2.4.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.2.4.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.5B.2.3.3.1.5 Test requirement

Same test requirement as in clause 6.5.2.4.1.5 in TS 38.521-1 [8].

6.5B.2.3.3.2 UTRA - Adjacent channel leakage ratio for inter-band EN-DC within FR1 (1 NR CC)

6.5B.2.3.3.2.1 Test purpose

Same test purpose as in clause 6.5.2.4.2.1 in TS 38.521-1 [8].

6.5B.2.3.3.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

6.5B.2.3.3.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.4.2.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied

6.5B.2.3.3.2.4 Test description

Same test description as in clause 6.5.2.4.2.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.5.2.4.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.2.4.2.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

6.5B.2.3.3.2.5 Test requirement

Same test requirement as in clause 6.5.2.4.2.5 in TS 38.521-1 [8].

6.5B.2.3a Out-of-band emissions for Inter-band NE-DC within FR1

6.5B.2.3a.1 Spectrum emissions mask for Inter-band NE-DC within FR1

No exception requirements applicable to NR or LTE.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 6.5.2.2 and 6.5A.2.2 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.6.2.1 and 6.6.2.1A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

6.5B.2.3a.2 Additional Spectrum emissions mask for Inter-band NE-DC within FR1

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 6.5.2.3 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.6.2.2 and 6.6.2.2A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 6.5B.2.3a.3 Adjacent channel leakage ratio for inter-band NE-DC within FR1

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 6.5.2.4 and 6.5A.2.4 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.6.2.3 and 6.6.2.3A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 6.5B.2.4 Out-of-band emissions for Inter-band EN-DC including FR2

# 6.5B.2.4.1 Spectrum emissions mask for Inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances are FFS for power class 1 FR2b, 2, and 4.

# 6.5B.2.4.1.1 Test purpose

Same test purpose as in clause 6.5.2.1.1 in TS 38.521-2 [9] for the NR carrier.

### 6.5B.2.4.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

# 6.5B.2.4.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.5B.2.4.1.4 Test description

# 6.5B.2.4.1.4.1 Initial conditions

Same test description as in clause 6.5.2.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.5.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.1.5 Test requirement

Same test requirement as in clause 6.5.2.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.1a Spectrum emissions mask with Power Boost for Inter-band EN-DC including FR2 (1 NR CC)

# 6.5B.2.4.1a.1 Test purpose

Same test purpose as in clause 6.5.2.1\_1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.1a.2 Test applicability

This test case applies to all types of NR UE release 16 and forward supporting *mpr-PowerBoost-FR2-r16* UE capability, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

# 6.5B.2.4.1a.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.1\_1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.5B.2.4.1a.4 Test description

Same test description as in clause 6.5.2.1\_1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.5.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2.4\_1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.2.1\_1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.1a.5 Test requirement

Same test requirement as in clause 6.5.2.1\_1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.1\_1 Spectrum emissions mask for Inter-band EN-DC including FR2 (>1 NR CC)

Editor's note: Test applicability, Test Description in below sub-clauses requires updates to clarify number of E-UTRA carriers that will be configured during the test

# 6.5B.2.4.1\_1.1 Spectrum emissions mask for Inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

The referred test case 6.5A.2.1.1 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.

# 6.5B.2.4.1\_1.1.1 Test purpose

Same test purpose as in clause 6.5.2.1.1 in TS 38.521-2 [9] for the NR carrier.

### 6.5B.2.4.1\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

# 6.5B.2.4.1\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.1.4.

### 6.5B.2.4.1 1.1.4 Test description

### 6.5B.2.4.1\_1.1.4.1 Initial condition

Same test description as in clause 6.5A.2.1.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.1\_1.1.5 Test Requirements

Same test requirement as in clause 6.5A.2.1.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.1\_1.2 Spectrum emissions mask for Inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.1.2 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.

## 6.5B.2.4.1\_1.2.1 Test purpose

Same test purpose as in clause 6.5.2.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.1\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

# 6.5B.2.4.1\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.1.4.

# 6.5B.2.4.1\_1.2.4 Test description

### 6.5B.2.4.1 1.2.4.1 Initial condition

Same test description as in clause 6.5A.2.1.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.1.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.1.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.1.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.1\_1.2.5 Test Requirements

Same test requirement as in clause 6.5A.2.1.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.1\_1.3 Spectrum emissions mask for Inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.1.3 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.

# 6.5B.2.4.1\_1.3.1 Test purpose

Same test purpose as in clause 6.5.2.1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.2.4.1\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

# 6.5B.2.4.1\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.1.4.

### 6.5B.2.4.1\_1.3.4 Test description

# 6.5B.2.4.1\_1.3.4.1 Initial condition

Same test description as in clause 6.5A.2.1.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.1.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.1.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.1.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.1\_1.3.5 Test Requirements

Same test requirement as in clause 6.5A.2.1.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.1D Spectrum emissions mask for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.5D.2.1 in TS 38.521-2 [9] is incomplete

# 6.5B.2.4.1D.1 Test purpose

Same test purpose as in clause 6.5D.2.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.1D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC FR2.

# 6.5B.2.4.1D.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5D.2.1 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.2B.2.4.

#### 6.5B.2.4.1D.4 Test description

Same test description as in clause [6.5D.2.1] in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause [6.5D.2.1] in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

[Step 6] of Initial conditions as in clause [6.5D.2.1] in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.

#### 6.5B.2.4.1D.5 Test Requirement

Same test requirement as in clause 6.5D.2.1.5 of TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5.2.3 in TS 38.521-2 [9] is incomplete for PC1, 2 and 4.
- The referred test case 6.5.2.3 in TS 38.521-2 [9] is incomplete for aggregated BW > 400MHz.

#### 6.5B.2.4.3.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

#### 6.5B.2.4.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 6.5B.2.4.3.4 Test description

# 6.5B.2.4.3.4.1 Initial conditions

Same test description as in clause 6.5.2.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1. For Initial conditions as in clause 6.5.2.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.2.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.2.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.3.5 Test requirement

Same test requirement as in clause 6.5.2.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3\_1 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (>1 NR CC)

Editor's note: Test applicability, Test Description in below sub-clauses requires updates to clarify number of E-UTRA carriers that will be configured during the test

#### 6.5B.2.4.3\_1.1 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.2.1 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.

# 6.5B.2.4.3\_1.1.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

#### 6.5B.2.4.3\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

#### 6.5B.2.4.3\_1.1.4 Test description

#### 6.5B.2.4.3\_1.1.4.1 Initial condition

Same test description as in clause 6.5A.2.2.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.3\_1.1.5 Test Requirements

Same test requirement as in clause 6.5A.2.2.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3\_1.2 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.2.2 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.

#### 6.5B.2.4.3 1.2.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.5B.2.4.3\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

# 6.5B.2.4.3\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

### 6.5B.2.4.3 1.2.4 Test description

# 6.5B.2.4.3\_1.2.4.1 Initial condition

Same test description as in clause 6.5A.2.2.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.2.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.2.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.2.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.3\_1.2.5 Test Requirements

Same test requirement as in clause 6.5A.2.2.2.5 in TS 38.521-2 [9] for the NR carrier.

#### 6.5B.2.4.3\_1.3 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.2.3 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.

# 6.5B.2.4.3\_1.3.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.5B.2.4.3 1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

#### 6.5B.2.4.3\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.2.4.

#### 6.5B.2.4.3\_1.3.4 Test description

# 6.5B.2.4.3\_1.3.4.1 Initial condition

Same test description as in clause 6.5A.2.2.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.2.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.2.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.2.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.5B.2.4.3\_1.3.5 Test Requirements

Same test requirement as in clause 6.5A.2.2.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3\_1.4 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (5 NR CCs)

Editor's note: The test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.2.4 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.
- Measurement Uncertainties and Test Tolerances is incomplete.

#### 6.5B.2.4.3 1.4.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.5B.2.4.3\_1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5 NR UL CCs.

# 6.5B.2.4.3\_1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.4.

#### 6.5B.2.4.3\_1.4.4 Test description

#### 6.5B.2.4.3\_1.4.4.1 Initial condition

Same test description as in clause 6.5A.2.2.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.5B.2.4.3 1.4.5 Test Requirements

Same test requirement as in clause 6.5A.2.2.4.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3\_1.5 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (6 NR CCs)

Editor's note: The test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.2.4 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.
- Measurement Uncertainties and Test Tolerances is incomplete.

#### 6.5B.2.4.3\_1.5.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.5B.2.4.3 1.5.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 6 NR UL CCs.

#### 6.5B.2.4.3\_1.5.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.4.

#### 6.5B.2.4.3\_1.5.4 Test description

#### 6.5B.2.4.3\_1.5.4.1 Initial condition

Same test description as in clause 6.5A.2.2.5.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.3\_1.5.5 Test Requirements

Same test requirement as in clause 6.5A.2.2.5.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3\_1.6 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (7 NR CCs)

Editor's note: The test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.2.4 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.
- Measurement Uncertainties and Test Tolerances is incomplete.

# 6.5B.2.4.3\_1.6.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.5B.2.4.3\_1.6.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 7 NR UL CCs.

#### 6.5B.2.4.3 1.6.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.4.

#### 6.5B.2.4.3 1.6.4 Test description

#### 6.5B.2.4.3\_1.6.4.1 Initial condition

Same test description as in clause 6.5A.2.2.6.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.5B.2.4.3\_1.6.5 Test Requirements

Same test requirement as in clause 6.5A.2.2.6.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3\_1.7 Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (8 NR CCs)

Editor's note: The test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.2.2.4 in TS 38.521-2 [9] is incomplete for intra-band contiguous CA supporting aggregated BW > 400MHz are TBD.
- Measurement Uncertainties and Test Tolerances is incomplete.

### 6.5B.2.4.3\_1.7.1 Test purpose

Same test purpose as in clause 6.5.2.3.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4.3\_1.7.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 8 NR UL CCs.

# 6.5B.2.4.3\_1.7.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.2.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.2.4.

# 6.5B.2.4.3\_1.7.4 Test description

#### 6.5B.2.4.3 1.7.4.1 Initial condition

Same test description as in clause 6.5A.2.2.7.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.2.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.2.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4.3\_1.7.5 Test Requirements

Same test requirement as in clause 6.5A.2.2.7.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.2.4D.3 Adjacent channel leakage ratio for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.5D.2.2 in TS 38.521-2 [9] is incomplete

# 6.5B.2.4D.3.1 Test purpose

Same test purpose as in clause 6.5D.2.2 in TS 38.521-2 [9] for the NR carrier.

#### 6.5B.2.4D.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC FR2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.5B.2.4D.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5D.2.2 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.2B.2.4.

### 6.5B.2.4D.3.4 Test description

Same test description as in clause 6.5D.2.2 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.5D.2.2 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

[Step 6] of Initial conditions as in clause 6.5D.2.2 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.

Same test procedure as in clause 6.5D.2.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.2.4D.3.5 Test Requirement

Same test requirement as in clause 6.5D.2.2 of TS 38.521-2 [9] for the NR carrier.

# 6.5B.3 Spurious emissions for EN-DC

Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emissions, intermodulation products and frequency conversion products, but exclude out of band emissions. The spurious emission limits are specified in terms of general requirements in line with SM.329 [3] and *NR* operating band requirement to address UE co-existence.

To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

# 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC

#### 6.5B.3.1.1 General spurious emissions for intra-band contiguous EN-DC

# 6.5B.3.1.1.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to other channels or other systems in terms of transmitter spurious emissions.

# 6.5B.3.1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC.

# 6.5B.3.1.1.3 Minimum conformance requirements

The general spurious emissions requirements specified in clause 6.6.3.1 of TS 36.101 [5] and clause 6.5.3.1 of TS 38.101-1 [2] apply beyond any frequencies for which the out-of-band emissions requirements in clause 6.5B.2.1 of TS 38.101-3 [4] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.1.1.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.5B.3.1.1.4 Test description

Same test description as in clause 6.5.3.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

Table 6.5B.3.1.1.4-1: Test Configuration Table

Initial Conditions					
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes	Low range, Mid range, High range				
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE					
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB_agg, only the combination with the highest NRB_SCG is tested for Lowest NRB_agg and Highest NRB_agg, respectively.					

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths are specified in Table 4.6-1 except for the parameters specified in Table 6.5B.3.1.1.4-1.

For Initial conditions as in clause 6.5.3.1.4 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 6.5B.3.1.1.4-1.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 4.1. The UL Reference Measurement channels are set according to Table 6.5B.3.1.1.4-1.

Step 6 of Initial conditions as in clause 6.5.3.1.4 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.5.3.1.4 in TS 38.521-1 [8].

#### 6.5B.3.1.1.5 Test Requirement

The measured average power of spurious emission, derived in step 5, shall not exceed the described value in Table 6.5B.3.1.1.5-1.

Unless otherwise stated, the spurious emission limits apply for the frequency ranges that are more than  $\Delta f_{OOB}$  (MHz) from the edge of the channel bandwidth shown in Table 6.5.3.1.3-1 of TS 38.521-1 [8] for NR carrier, and Table 6.6.3.1.3-1 of TS 36.521-1[10] for E-UTRA carrier.

NOTE: For measurement conditions at the edge of each frequency range, the lowest frequency of the measurement position in each frequency range should be set at the lowest boundary of the frequency range plus MBW/2. The highest frequency of the measurement position in each frequency range should be set at the highest boundary of the frequency range minus MBW/2. MBW denotes the measurement bandwidth defined for the protected band.

Table 6.5B.3.1.1.5-1: General spurious emissions test requirements

Frequency	Frequency Range Maximum		Measurement	NOTE
		Level	bandwidth	
9 kHz ≤ f <	9 kHz ≤ f < 150 kHz -36 dBm		1 kHz	
150 kHz ≤ f •	< 30 MHz	-36 dBm	10 kHz	
30 MHz ≤ f <	1000 MHz	-36 dBm	100 kHz	
1 GHz ≤ f < 1	2.75 GHz	-30 dBm	1 MHz	4
		-25 dBm	1 MHz	3
12.75 GHz ≤ f < 5th harmonic of the upper frequency edge of the UL operating band in GHz		1 MHz	1	
12.75 GHz < 1	f < 26 GHz	-30 dBm	1 MHz	2
NOTE 1: Applies for Band that the upper frequency edge of the UL Band more than 2.69 GHz.  NOTE 2: Applies for Band that the upper frequency edge of the UL Band more				
than 5.2 GHz.  NOTE 3: Applies for Band n41, CA configurations including Band n41, and EN-DC configurations that include n41 specified in clause 5.2B of TS 36.101 [5] when NS_04 is signalled.				
NOTE 4: Does not apply for Band n41, CA configurations including Band n41, and EN-DC configurations that include n41 specified in subclause 5.2B of TS 38.101-3 [4] when NS_04 is signalled.				

# 6.5B.3.1.2 Spurious emission band UE co-existence for intra-band contiguous EN-DC

# 6.5B.3.1.2.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to other channels or other systems in terms of transmitter spurious emissions for band UE co-existence for intra-band contiguous EN-DC.

# 6.5B.3.1.2.2 Test applicability

This test case applies to all types of NR UE release 15 and forward supporting intra-band contiguous EN-DC.

# 6.5B.3.1.2.3 Minimum conformance requirements

This clause specifies the requirements for the specified EN-DC configurations for coexistence with protected bands.

The requirements in Table 6.5B.3.1.2.3-1 apply on each component carrier with all component carriers are active.

Table 6.5B.3.1.2.3-1: Requirements for intra band contiguous EN-DC

EN-DC		Spurious	em	ission			
Configur ation	Protected band	Frequency range (MHz)			Maximum Level (dBm)	MBW (MHz)	NOTE
DC_(n)71	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 30, 48, 66	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 25, 41, 70 NR Band n77 <sup>5</sup>	$F_{DL_{low}}$	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 29	F <sub>DL_low</sub>	•	F <sub>DL_high</sub>	-38	1	3
	E-UTRA Band 71	F <sub>DL_low</sub>	•	F <sub>DL_high</sub>	-50	1	3
DC_(n)41	E-UTRA Band 1, 2, 3, 4, 5, 8, 10, 11, 12, 13, 14, 17, 18, 19, 21, 24, 25, 26, 27, 28, 29, 30, 34, 39, 42, 44, 45, 48, 50, 51, 66, 70, 71, 73, 74  NR Band n77, n78	FDL_low	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	4
	NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2

- NOTE 1: F<sub>DL\_low</sub> and F<sub>DL\_high</sub> refer to each frequency band specified in Table 5.5-1 in TS 36.101 [5] or in Table 5.2-1 in TS 38.101-1 [2].
- NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 in TS 36.101 [5] and Table 6.5.3.1-2 in TS 38.101-1 [2] are permitted for each assigned carrier used in the measurement due to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2MHz + N x L<sub>CRB</sub> x 180kHz), where N is 2, 3, 4, 5 for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.
- NOTE 3: These requirements also apply for the frequency ranges that are less than F <sub>OOB</sub> (MHz) in Table 6.6.3.1-1, Table 6.6.3.1A-1 in TS 36.101 [5] or in Table 6.5.3.1-1 in TS 38.101-1 [2] from the edge of the channel bandwidth.
- NOTE 4: Applicable when co-existence with PHS system operating in 1884.5 1915.7 MHz.
- NOTE 5: Only applies to NR UE release 16 and forward supporting intra-band contiguous EN-DC.

NOTE: To simplify the above Table, E-UTRA band numbers are listed for bands which are specified only for E-UTRA operation or both E-UTRA and NR operation. NR band numbers are listed for bands which are specified only for NR operation.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.1.2.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included, and E-UTRA measurements are performed.

6.5B.3.1.2.4 Test description

6.5B.3.1.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.2, and the channel bandwidth combination for E-UTRA and NR component carriers shall follow the value specified in Table 5.3B.1.2-1. All these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 6.5B.3.1.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annexe A, clause A.2.3 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A, clause A.2.2 for E-UTRA RMC for FDD, and TS 38.521-1 [8] Annex A, clause A.2 for NR RMC. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

# Table 6.5B.3.1.2.4.1-1: Test configuration table

Initial Conditions	Initial Conditions					
Test Environmer		Normal				
	S 38.508-1 [6] clause 4.1					
Test Frequencie						
as specified in T	S 38.508-1 [6]	Low range, Hig	gh range			
clause 4.3.1						
Test EN-DC ban	dwidth combination as	Lowest and Hi	ghest N <sub>RB_agg</sub>			
specified in Tabl	e 5.3B.1.2-1	(NOTE 3)				
Test SCS for the	NR cell as specified in	Lowest CCC n	or Channal Da	n duvidth		
TS 38.521-1 [8]	Table 5.3.5-1	Lowest SCS per Channel Bandwidth				
Test Parameters						
Test ID	Downlink		EN-DC Uplii	nk Configuratio	n	
	Configuration	E-UTRA Cell		NF	R Cell	
		Modulation	RB	Modulation	RB allocation	
			allocation		(NOTE 1)	
			(NOTE 2)		, ,	
4		0.0014	Outer 1RB	CP-OFDM	Edge_1RB_Rig	
1	N/A for Spurious	QPSK Left QPSK ht				
2	emission.	ODSK Outer Full CP-OFDM Outer Full				
2		QPSK Outer_Full QPSK Outer_Full				
NOTE 1: The s	pecific configuration of eac	h RB allocation	is defined in Ta	able 6.1-1 in TS	38.521-1 [8].	

- NOTE 2: Outer\_Full defined as the transmission bandwidth configuration N<sub>RB</sub> per channel bandwidth for the E-UTRA component as indicated in TS 36.521-1 [10] Table 5.4.2-1. Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same aggregated channel BW, only the combination with the highest NR BW is tested.
- NOTE 4: The test configuration applies to intra-band contiguous EN-DC indicating support of dual simultaneous UL as defined in clause 5.5B.2.
- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for TE diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. E-UTRA downlink signals are initially set up according to Annex C0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0 of TS 36.521-1 [10].
- 4. NR downlink signals are initially set up according to Annex C.0, C.1 and C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0 of TS 38.521-1 [8].
- 5. The UL Reference Measurement channels are set up according to TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG, respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG, respectively.
- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.5B.3.1.2.4.3.
- 8. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

#### 6.5B.3.1.2.4.2 **Test Procedure**

1. E-UTRA SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to Table 6.5B.3.1.2.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.

- 2. NR SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.5B.3.1.2.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 3. Both NR and E-UTRA SS send continuously uplink power control "up" commands in the uplink scheduling information to the UE until the UE transmits at P<sub>UMAX</sub> level; allow at least 200 ms starting from the first TPC command in this step for the UE to reach P<sub>UMAX</sub> level.
- 4. Measure the power of the transmitted signal with a measurement filter of bandwidths according to Table 6.5B.3.1.2.3-1. The centre frequency of the filter shall be stepped in contiguous steps according to Table 6.5B.3.1.2.3-1. The measured power shall be verified for each step. The measurement period shall capture the active time slots.

In addition to test configuration and test procedure above, EN-DC only capable UEs and UEs not supporting NR/5GC mode in the tested band need to be tested according to test description as in clause 6.5.3.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

LTE anchor agnostic approach as specified in section 4.6.

# 6.5B.3.1.2.4.3 Message Contents

Message contents are according to TS 36.508 [11] clause 4.6 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions:

Table 6.5B.3.1.2.4.3-1: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8						
Information Element	Value/remark	Comment	Condition			
p-MaxEUTRA-r15	23		Power Class 2 UE			
p-iviaxEUTRA-ITS	20		Power Class 3 UE			

# Table 6.5B.3.1.2.4.3-2: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106						
Information Element Value/remark Comment Condition						
» ND ED4	23		Power Class 2 UE			
p-NR-FR1	20		Power Class 3 UE			

# Table 6.5B.3.1.2.4.3-3: SystemInfomationBlockType1: tdd-Config if operating on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

#### 6.5B.3.1.2.5 Test Requirement

Test requirements for Spurious Emissions UE Co-existence for intra-band contiguous EN-DC are the same as the minimum requirements described in clause 6.5B.3.1.2.3 minimum requirements and are not repeated in this clause.

For EN-DC only capable devices, in addition to Table 6.5B.3.1.2.3-1, test requirements for NR carrier are the same as Table 6.5.3.2.5-1 in TS 38.521-1 [8].

# 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC

# 6.5B.3.2.1 General spurious emissions for Intra-band non-contiguous EN-DC

#### 6.5B.3.2.1.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to other channels or other systems in terms of transmitter spurious emissions.

# 6.5B.3.2.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward supporting intra-band non-contiguous EN-DC.

#### 6.5B.3.2.1.3 Minimum conformance requirements

The general spurious emissions requirements specified in clause 6.6.3.1 of TS 36.521-1 [10] and clause 6.5.3.1 of TS 38.521-1 [8] apply beyond any frequencies for which the out-of-band emissions requirements in clause 6.5B.2.2 of TS 38.101-3 [4] apply. If for some frequency an individual CC spurious emission requirement overlaps with the general spectrum emission mask or the bandwidth of another CC then it does not apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.2.1.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.5B.3.2.1.4 Test description

Same test description as in clause 6.5.3.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

Table 6.5B.3.2.1.4-1: Test Configuration Table

Initial Conditions					
Test Frequencies as specified in TS 38.508-1 [6] Low with maxWgap					
clause 4.3.1 for different EN-DC bandwidth classes High with maxWgap					
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE  Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (NOTE 1)					
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same  NRB_agg, only the combination with the highest NRB_SCG is tested for Lowest NRB_agg and Highest NRB_agg, respectively.					

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths are specified in Table 4.6-1 except for the parameters specified in Table 6.5B.3.2.1.4-1.

For Initial conditions as in clause 6.5.3.1.4 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3 with E-UTRA channel bandwidth and test frequencies defined in Table 6.5B.3.2.1.4-1.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.3.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.5.3.1.4.2 in TS 38.521-1 [8].

# 6.5B.3.2.1.5 Test Requirement

Same test requirement as in clause 6.5B.3.1.1.5.

# 6.5B.3.2.2 Spurious emission band UE co-existence for intra-band non-contiguous EN-DC

#### 6.5B.3.2.2.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to other channels or other systems in terms of transmitter spurious emissions for band UE co-existence for intra-band non-contiguous EN-DC.

#### 6.5B.3.2.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward supporting intra-band non-contiguous EN-DC.

# 6.5B.3.2.2.3 Minimum conformance requirements

This clause specifies the requirements for the specified EN-DC configurations for co-existence with protected bands.

The requirements in Table 6.5B.3.2.2.3-1 apply with all component carriers are active.

Table 6.5B.3.2.2.3-1: Requirements for intra-band non-contiguous EN-DC

	Spurious emission								
EN-DC Configuration	Protected band		Frequency range (MHz)		Maximum Level (dBm)	MBW (MHz)	NOTE		
DC_41A_n41A	E-UTRA Band 1, 2, 3, 4, 5, 8, 10, 11, 12, 13, 14, 17, 18, 19, 21, 24, 25, 26, 27, 28, 29, 34, 39, 42, 44, 45, 48, 50, 51, 66, 70, 71, 73, 74 NR Band n77, n78 and n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
	Frequency range	1884.5	•	1915.7	-41	0.3	3		
	E-UTRA Band 30, 40	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-40	1			
							1		

NOTE 1: F<sub>DL\_low</sub> and F<sub>DL\_high</sub> refer to each E-UTRA frequency band specified in Table 5.5-1 in TS 36.101 [5] or in Table 5.2-1 in TS 38.101-1 [2].

NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 in TS 36.101 [5] and Table 6.5.3.1-2 in TS 38.101-1 [2] are permitted for each assigned carrier used in the measurement due to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, or 5<sup>th</sup> harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2MHz + N x L<sub>CRB</sub> x 180kHz), where N is 2, 3, 4, 5 for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.

NOTE 3: Applicable when co-existence with PHS system operating in 1884.5 - 1915.7 MHz.

NOTE: To simplify the above Table, E-UTRA band numbers are listed for bands which are specified only for EUTRA operation or both E-UTRA and NR operation. NR band numbers are listed for bands which are specified only for NR operation.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.2.2.

Exception requirements are applicable for NR but not for E-UTRA within this test. LTE anchor agnostic approach is not applied. E-UTRA configuration is included.

6.5B.3.2.2.4 Test description

#### 6.5B.3.2.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.3, and the channel bandwidth combination for E-UTRA and NR component carriers shall follow the value specified in Table 5.3B.1.3-1. All these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.3 and are shown in Table 6.5B.3.2.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annexe A, clause A.2.3 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A, clause A.2.2 for E-UTRA RMC for FDD, and TS 38.521-1 [8] Annex A, clause A.2 for NR RMC. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.5B.3.2.2.4.1-1: Test configuration table

		Initial Conditi	ions			
Test Environment as specified in TS 38.508-1 [6] clause 4.1		Normal				
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1		Low with maxWgap High with maxWgap				
Test EN-DC ba specified in Tab	ndwidth combination as le 5.3B.1.3-1	Lowest and Highest N <sub>RB_agg</sub> (NOTE 3)				
Test SCS for th TS 38.521-1 [8]	e NR cell as specified in Table 5.3.5-1	Lowest SCS per Channel Bandwidth				
		Test Parame	ters			
Test ID	Downlink	EN-DC Uplin		nk Configuration	n	
	Configuration	E-UTRA Cell		N	R Cell	
		Modulation	RB	Modulation	RB allocation	
			allocation (NOTE 2)		(NOTE 1)	
1	N/A for Spurious	QPSK	Outer_1RB _Left	CP-OFDM QPSK	Edge_1RB_Rig ht	
2	emission.	QPSK Outer_Full CP-OFDM Outer_Full QPSK				
NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].  NOTE 2: Outer_Full defined as the transmission bandwidth configuration N <sub>RB</sub> per channel bandwidth for the E-UTRA component as indicated in TS 36.521-1 [10] Table 5.4.2-1. Outer_1RB_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Outer_1RB_Right defined as 1 RB allocated at the right edge of the E-UTRA component.						

- allocated at the right edge of the E-UTRA component.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same aggregated channel BW, only the combination with the highest NR BW is tested.
- NOTE 4: The test configuration applies to intra-band non-contiguous EN-DC indicating support of dual simultaneous UL as defined in clause 5.5B.3.
- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for SS diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. E-UTRA downlink signals are initially set up according to Annex C.0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0 of TS 36.521-1 [10].
- 4. NR downlink signals are initially set up according to Annex C.0, C.1 and C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0 of TS 38.521-1 [8].
- 5. The UL Reference Measurement channels are set according to TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B and TS 38.521-1 [8] Annex B for E-UTRA link and NR link respectively.

- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.5B.3.2.2.4.3.
- 8. For the case of testing overlapping E-UTRA and NR UL transmission scenario when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

#### 6.5B.3.2.2.4.2 Test Procedure

- 1. E-UTRA SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to Table 6.5B.3.2.2.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 2. NR SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.5B.3.2.2.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 3. Send continuously uplink power control "up" commands to the UE for both NR and E-UTRA carriers until the UE transmits at its P<sub>UMAX</sub> level; allow at least 200 ms starting from the first TPC command in this step for the UE to reach P<sub>UMAX</sub> level.
- 4. Measure the power of the transmitted signal with a measurement filter of bandwidths according to Table 6.5B.3.2.2.3-1. The centre frequency of the filter shall be stepped in contiguous steps according to the same table. The measured power shall be verified for each step. The measurement period shall capture the active time slots.

In addition to test configuration and test procedure above, EN-DC only capable UEs and UEs not supporting NR/5GC mode in the tested band need to be tested according to test description as in clause 6.5.3.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

LTE anchor agnostic approach as specified in section 4.6.

### 6.5B.3.2.2.4.3 Message Contents

Message contents are according to TS 36.508 [11] clause 4.6 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

Table 6.5B.3.2.2.4.3-1: RRCConnectionReconfiguration: nr-Config-r15.

Derivation Path: TS 36.508 [11], Table 4.6.1-8					
Information Element	Value/remark	Comment	Condition		
p-MaxEUTRA-r15	23		Power Class 2 UE		
p-iviaxEOTRA-ITS	20		Power Class 3 UE		

#### Table 6.5B.3.2.2.4.3-2: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106						
Information Element Value/remark Comment Condition						
p-NR-FR1	23		Power Class 2 UE			
p-INK-FK I	20		Power Class 3 UE			

# Table 6.5B.3.2.2.4.3-3: SystemInfomationBlockType1: tdd-Config if operating on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD band	
subframeAssignment	sa2		
specialSubframePatterns	ssp7		
}			

#### 6.5B.3.2.2.5 Test Requirement

Test requirements for Spurious Emissions UE Co-existence for intra-band non-contiguous EN-DC are the same as the minimum requirements described in clause 6.5B.3.2.2.3 and are not repeated in this clause.

For EN-DC only capable devices, in addition to Table 6.5B.3.2.2.3-1, test requirements for NR carrier are the same as Table 6.5.3.2.5-1 in TS 38.521-1 [8].

# 6.5B.3.3 Spurious Emissions for Inter-band EN-DC within FR1

### 6.5B.3.3.1 General spurious emissions for Inter-band EN-DC within FR1

# 6.5B.3.3.1.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to other channels or other systems in terms of transmitter spurious emissions.

# 6.5B.3.3.1.2 Test applicability

This test case applies to all types of NR UE release 15 and forward supporting inter-band EN-DC.

#### 6.5B.3.3.1.3 Minimum conformance requirements

The general spurious emissions requirements specified in subclause 6.6.3.1 of TS 36.101 [5], subclause 6.5.3.1 of TS 38.101-1 [2] and TS 38.101-2 [3] apply for each component carrier. For the case of inter-band EN-DC with a single carrier per cell group, the general spurious emissions requirements also apply with both downlink carrier and both uplink carriers active. Limits on configured maximum output power for the uplink according to subclause 6.2B.4 apply.

NOTE: The general spurious emission requirements with both uplink carriers active are allowed to be verified for only a single inter-band EN-DC configuration per NR band. Furthermore, the requirements are allowed to be verified by measuring spurious emissions at the specific frequencies where second and third order intermodulation products generated by the two transmitted carriers can occur.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.3.1. Exception requirements applicable for both NR and LTE, therefore LTE anchor agnostic approach is not applied.

# 6.5B.3.3.1.4 Test description

#### 6.5B.3.3.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, DC configuration specified in Table 5.5B.4.1-1 and test channel bandwidths specified in TS 36.508 [11] clause 4.3.1 and TS 38.508-1 [6] clause 4.3.1, and sub-carrier spacing based on NR operating bands specified in TS 38.521-1 [8] clause 5.3. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration, and are shown in Table 6.5B.3.3.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annexe A, clause A.2.3 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A, clause A.2.2 for E-UTRA RMC for FDD, and TS 38.521-1 [8] Annex A, clause A.2 for NR RMC. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 6.5B.3.3.1.4.1-1: Test configuration table

		Initial Conditi	ons		
Test Environme as specified in T	nt 'S 38.508-1 [6] clause 4.1	Normal			
Test Frequencie as specified in T clause 4.3.1		Low range for PCC and SCC High range for PCC and SCC			
specified in TS 3	annel bandwidth as 36.508 [11] clause 4.3.1 1 [6] clause 4.3.1	5 MHz for E-UTRA CC and Lowest for NR CC Highest for E-UTRA CC and Highest for NR CC			
Test SCS for the TS 38.521-1 [8]	e NR cell as specified in Table 5.3.5-1	Lowest SCS per Channel Bandwidth			
		Test Paramet	ers		
Test ID	Downlink		EN-DC Upli	nk Configuration	n
	Configuration	E-UTR	A Cell	N	R Cell
		Modulation	RB allocation (NOTE 2)	Modulation	RB allocation (NOTE 1)
1		QPSK	Outer_1RB _Left	CP-OFDM QPSK	Edge_1RB_Left
2	N/A for Spurious emission.	QPSK	Outer_1RB _Right	CP-OFDM QPSK	Edge_1RB_Rig ht
3		QPSK	Outer_Full	CP-OFDM QPSK	Outer_Full

- NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].
- NOTE 2: Outer\_Full defined as the transmission bandwidth configuration N<sub>RB</sub> per channel bandwidth for the E-UTRA component as indicated in TS 36.521-1 [10] Table 5.4.2-1. Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component.
- NOTE 3: Only applicable to UEs not supporting UE capability singleUL-Transmission.
- NOTE 4: Only one EN-DC combination per FR1 band is tested for each EN-DC configuration as defined in clause 5.5B.4.
- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for SS diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. E-UTRA downlink signals are initially set up according to Annex C.0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0 of TS 36.521-1 [10].
- 4. NR downlink signals are initially set up according to Annex C.0, C.1 and C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0 of TS 38.521-1 [8].
- 5. The UL Reference Measurement channels are set according to TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 6. Propagation conditions are set according to TS 36.521-1 [10] Annex B and TS 38.521-1 [8] Annex B for E-UTRA link and NR link respectively.
- 7. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.5B.3.3.1.4.3.
- 8. For both E-UTRA and NR UL uplink carriers active when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

### 6.5B.3.3.1.4.2 Test procedure

1. E-UTRA SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to Table 6.5B.3.3.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.

- 2. NR SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.5B.3.3.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 3. Send continuously uplink power control "up" commands to the UE for both NR and E-UTRA carriers until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms starting from the first TPC command in this step for the UE to reach  $P_{UMAX}$  level.
- 4. Measure the power of the transmitted signal with a measurement filter of bandwidths according to Table 6.5B.3.3.1.5-1. The centre frequency of the filter shall be stepped in contiguous steps according to the same table. The measured power shall be verified for each step. The measurement period shall capture the active time slots.
- 5. For UE operating on EN-DC configuration with Band n41, redo the test for frequency range 1 GHz  $\leq$  f < 12.75 GHz with the message content in step 7 of initial conditions with exceptions defined in Table 6.5B.3.3.1.4.3-4.

In addition to test configuration and test procedure above, EN-DC only capable UEs and UEs not supporting NR/5GC mode in the tested band need to be tested according to LTE anchor agnostic below.

Same test description as in clause 6.5.3.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 6.5.3.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.3.1.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.5B.3.3.1.4.3 Message Contents

Message contents are according to TS 36.508 [11] clause 4.6 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

Table 6.5B.3.3.1.4.3-1: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD	
		band	
subframeAssignment	Sa2		
specialSubframePatterns	Ssp7		
}			

Table 6.5B3.3.1.4.3-1a: Void

# Table 6.5B.3.3.1.4.3-2: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8					
Information Element	Value/remark	Comment	Condition		
	23		Power Class 2 UE AND simultaneous E-		
p-MaxEUTRA-r15	2.0		UTRA and NR transmission		
p-iviaxEUTRA-ITS	20		Power Class 3 UE AND simultaneous E-		
	20		UTRA and NR transmission		

# Table 6.5B.3.3.1.4.3-3: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106					
Information Element	Value/remark	Comment	Condition		
p-NR-FR1	23		Power Class 2 UE AND simultaneous E- UTRA and NR transmission		
p-ink-rk i	20		Power Class 3 UE AND simultaneous E- UTRA and NR transmission		

Exception for step 5 in test procedure:

# Table 6.5B.3.3.1.4.3-4: Message contents

Derivation Path: TS 38.508-1 [5], Table 4.6.3-1			
Information Element	Value/remark	Comment	Condition
additionalSpectrumEmission	1 (NS_04)		

# 6.5B.3.3.1.5 Test Requirement

For EN-DC configurations listed in Table 6.5B.3.3.1.5-1, the corresponding test requirements of the same table apply.

For EN-DC configurations without test requirements specified in Table 6.5B.3.3.1.5-1, the test requirements in clause 6.5B.3.1.1.5 shall apply.

For EN-DC only capable devices, for EN-DC configurations listed in Table 6.5B.3.3.1.5-1, in addition to Table 6.5B.3.3.1.5-1, test requirements for NR carrier are the same as Table 6.5.3.1.5-1 in TS 38.521-1 [8].

Table 6.5B.3.3.1.5-1: General spurious emissions test requirements

Frequency Range	Maximum Level	Measurement Bandwidth	Note
Test requirement	nts for DC_1A_	n3A configuration	
135 MHz ≤ f ≤ 270 MHz	-36 dBm	100 kHz	
1440 MHz ≤ f ≤ 1650 MHz			
2055 MHz ≤ f ≤ 2250 MHz	-30 dBm	1 MHz	
3630 MHz $\leq$ f $\leq$ 3765 MHz 5340 MHz $\leq$ f $\leq$ 5745 MHz			
	nts for DC 1A	n5A configuration	
222 MHz ≤ f ≤ 332 MHz	-36 dBm	100 kHz	
1071 MHz ≤ f ≤ 1156 MHz	-30 dBill	100 KHZ	
2744 MHz ≤ f ≤ 2829 MHz			
2991 MHz ≤ f ≤ 3136 MHz	-30 dBm	1 MHz	
3568 MHz ≤ f ≤ 3678 MHz			
4664 MHz ≤ f ≤ 4809 MHz			
•		n7A configuration	
520 MHz ≤ f ≤ 650 MHz	-36 dBm	100 kHz	
1270 MHz ≤ f ≤ 1460 MHz			
$3020 \text{ MHz} \le \text{f} \le 3220 \text{ MHz}$ $4420 \text{ MHz} \le \text{f} \le 4550 \text{ MHz}$	-30 dBm	1 MHz	
6340 MHz ≤ f ≤ 6530 MHz	-30 06111	I IVI□Z	
6920 MHz ≤ f ≤ 7120 MHz			
	nts for DC_1A_i	n8A configuration	
90 MHz ≤ f ≤ 220 MHz	-36 dBm	100 kHz	
1005 MHz ≤ f ≤ 1100 MHz			
2800 MHz ≤ f ≤ 2895 MHz			
2925 MHz ≤ f ≤ 3080 MHz	-30 dBm	1 MHz	
3680 MHz ≤ f ≤ 3810 MHz			
4720 MHz ≤ f ≤ 4875 MHz	te for DC 1A n	ll 128A configuration	
•		,	
424 MHz ≤ f ≤ 574 MHz	-36 dBm	100 kHz	
1172 MHz ≤ f ≤ 1277 MHz 2623 MHz ≤ f ≤ 2728 MHz			
3092 MHz ≤ f ≤ 3257 MHz	-30 dBm	1 MHz	
3326 MHz ≤ f ≤ 3476 MHz			
4543 MHz ≤ f ≤ 4708 MHz			
		77A Configuration	
360 MHz ≤ f ≤ 660 MHz	-36 dBm	100 kHz	
1320 MHz ≤ f ≤ 2280 MHz			
4620 MHz ≤ f ≤ 6480 MHz   7140 MHz ≤ f ≤ 8160 MHz	-30 dBm	1 MHz	
8520 MHz ≤ f ≤ 10380 MHz			
	ts for DC_1A_n	78A Configuration	
40 MHz ≤ f ≤ 660 MHz	-36 dBm	100 kHz	
1320 MHz ≤ f ≤ 1880 MHz			
4620 MHz ≤ f ≤ 5780 MHz	-30 dBm	1 MHz	
7140 MHz ≤ f ≤ 7760 MHz 8520 MHz ≤ f ≤ 9580 MHz			
	ts for DC 1A n	  79A Configuration	
440 MHz ≤ f ≤ 1000 MHz	-36 dBm	100 kHz	
1000 MHz ≤ f ≤ 1160 MHz			
2420 MHz ≤ f ≤ 3080 MHz			
6320 MHz ≤ f ≤ 8080 MHz	-30 dBm	1 MHz	
8240 MHz ≤ f ≤ 8960 MHz			
10720 MHz ≤ f ≤ 11980 MHz	te for DC 3A :	AFA Configuration	
-		n5A Configuration	
152 MHz ≤ f ≤ 262 MHz	-36 dBm	100 kHz	
1001 MHz ≤ f ≤ 1086 MHz			
2674 MHz ≤ f ≤ 2759 MHz 2851 MHz ≤ f ≤ 2996 MHz	-30 dBm	1 MHz	
3498 MHz ≤ f ≤ 3608 MHz	JO GENT	1 1111112	
4524 MHz ≤ f ≤ 4669 MHz			

Test requiremen	ts for DC_2A_n	41A Configuration	
586 MHz ≤ f ≤ 840 MHz	-36 dBm	100 kHz	
1010 MHz ≤ f ≤ 1324 MHz	-30 dBm	1 MHz	2
3082 MHz ≤ f ≤ 3530 MHz			
4346 MHz ≤ f ≤ 4600 MHz	-25 dBm	1 MHz	1
6196 MHz ≤ f ≤ 6510 MHz 6842 MHz ≤ f ≤ 7290 MHz			•
	ts for DC_2A_n	71A Configuration	
454 MHz ≤ f ≤ 584 MHz	-36 dBm	100 kHz	
1152 MHz ≤ f ≤ 1247 MHz			
2513 MHz ≤ f ≤ 2608 MHz			
3002 MHz ≤ f ≤ 3157 MHz	-30 dBm	1 MHz	
3176 MHz ≤ f ≤ 3306 MHz 4363 MHz ≤ f ≤ 4518 MHz			
	ts for DC 2A n	77A Configuration	
500 MHz ≤ f ≤ 520 MHz	-36 dBm	100 kHz	
1390 MHz ≤ f ≤ 2350 MHz	00 05	100 14 12	
4690 MHz ≤ f ≤ 6550 MHz	30 4D	4 MALI-	
7000 MHz ≤ f ≤ 8020 MHz	-30 dBm	1 MHz	
8450 MHz ≤ f ≤ 10310 MHz		11.0 "	
•		n1A Configuration	
135 MHz ≤ f ≤ 270 MHz	-36 dBm	100 kHz	
1440 MHz ≤ f ≤ 1650 MHz 2055 MHz ≤ f ≤ 2250 MHz			
3630 MHz ≤ f ≤ 3765 MHz	-30 dBm	1 MHz	
5340 MHz ≤ f ≤ 5745 MHz			
		n5A Configuration	
12 MHz ≤ f ≤ 30 MHz	-36 dBm	10 kHz	
30 MHz ≤ f ≤ 137 MHz 861 MHz ≤ f ≤ 961 MHz	-36 dBm	100 kHz	
2534 MHz ≤ f ≤ 2746 MHz			
3358 MHz ≤ f ≤ 3483 MHz	-30 dBm	1 MHz	
4244 MHz ≤ f ≤ 4419 MHz			
		n7A Configuration	
715 MHz ≤ f < 1000 MHz 1000 MHz ≤ f ≤ 1070 MHz	-36 dBm	100 kHz	
3215 MHz ≤ f ≤ 3430 MHz			
4210 MHz ≤ f ≤ 4355 MHz	-30 dBm	1 MHz	
5920 MHz ≤ f ≤ 6140 MHz			
6710 MHz ≤ f ≤ 6925 MHz	oto for DC 2A r	OA Configuration	
est requirement 25 MHz ≤ f ≤ 30 MHz	-36 dBm	n8A Configuration 10 kHz	
30 MHz ≤ f ≤ 120 MHz			
795 MHz ≤ f ≤ 905 MHz	-36 dBm	100 kHz	
2505 MHz ≤ f ≤ 2700 MHz	00 15	4.841.1	
$3470 \text{ MHz} \le \text{f} \le 3615 \text{ MHz}$ $4300 \text{ MHz} \le \text{f} \le 4485 \text{ MHz}$	-30 dBm	1 MHz	
	ts for DC 3A n	28A Configuration	
214 MHz ≤ f ≤ 379 MHz	-36 dBm	100 kHz	
962 MHz ≤ f ≤ 1000 MHz	-30 00111	I UU KI 12	
1000 MHz ≤ f ≤ 1082 MHz 2413 MHz ≤ f ≤ 2533 MHz			
2413 MHz ≤ f ≤ 2533 MHz 2672 MHz ≤ f ≤ 2867 MHz	-30 dBm	1 MHz	
3116 MHz ≤ f ≤ 3281 MHz	00 00111	. 1711 12	
4123 MHz ≤ f ≤ 4318 MHz			
		41A Configuration	
711 MHz ≤ f < 1000 MHz 1000MHz ≤ f ≤ 1074 MHz	-36 dBm -30 dBm	100 kHz 1 MHz	2
3207MHz ≤ f ≤ 3670 MHz	JO GDIII	I IVII IZ	
4206MHz ≤ f ≤ 4475 MHz	0E 4D	4 1411-	4
5916MHz ≤ f ≤ 6260 MHz	-25 dBm	1 MHz	1
6702MHz ≤ f ≤ 7165 MHz	to for DO 04	774 Canfi	
Test requirement	ts for DC_3A_n -36 dBm	77A Configuration 100 kHz	
21 U IVII IZ 2 I 2 1 0U IVI∏Z	-50 UDIII	I UU KI 1Z	

1515 MHz ≤ f ≤ 2490 MHz			
4815 MHz ≤ f ≤ 6690 MHz	-30 dBm	1 MHz	
6720 MHz ≤ f ≤ 7770 MHz	OO GEIII	1 1711 12	
8310 MHz ≤ f ≤ 10185 MHz			
		78A Configuration	
270 MHz ≤ f ≤ 380 MHz	-36 dBm	100 kHz	
1515 MHz ≤ f ≤ 2090 MHz			
4815 MHz ≤ f ≤ 5890 MHz	-30 dBm	1 MHz	
6720 MHz ≤ f ≤ 7370 MHz	00 05	1 111112	
8310 MHz ≤ f ≤ 9385 MHz			
		79A Configuration	
830 MHz ≤ f ≤ 1000 MHz	-36 dBm	100 kHz	
1000 MHz ≤ f ≤ 1580 MHz			
2615 MHz ≤ f ≤ 3290 MHz	00 ID	4 8 41 1	
6110 MHz ≤ f ≤ 6785 MHz	-30 dBm	1 MHz	
7015 MHz ≤ f ≤ 8570 MHz			
10510 MHz ≤ f ≤ 11785 MHz	to for DC EA .	24 Configuration	
	-36 dBm	n2A Configuration 100 kHz	
152 MHz ≤ f ≤ 262 MHz	-30 UDIII	TOU KHZ	
1001 MHz ≤ f ≤ 1086 MHz 2674 MHz ≤ f ≤ 2759 MHz			
2851 MHz ≤ f ≤ 2759 MHz	-30 dBm	1 MHz	
3498 MHz ≤ f ≤ 3608 MHz	-30 00111	I IVII IZ	
4524 MHz ≤ f ≤ 4669 MHz			
	ts for DC 5A n	66A Configuration	
12 MHz ≤ f ≤ 30 MHz	-36 dBm	10 kHz	
30 MHz ≤ f ≤ 132 MHz		_	
861 MHz ≤ f ≤ 956 MHz	-36 dBm	100 kHz	
2534 MHz ≤ f ≤ 2736 MHz			
3358 MHz ≤ f ≤ 3478 MHz	-30 dBm	1 MHz	
4244 MHz ≤ f ≤ 4409 MHz	OO GEIII	1 1711 12	
	ts for DC 5A n	77A Configuration	
1602 MHz ≤ f ≤ 3376 MHz			
4124 MHz ≤ f ≤ 9249 MHz	-30 dBm	1 MHz	
	ts for DC 5A n	78A Configuration	
1602 MHz ≤ f ≤ 2152 MHz			
2451 MHz ≤ f ≤ 2976 MHz			
4124 MHz ≤ f ≤ 4649 MHz	00 dD	4 MH-	
4948 MHz ≤ f ≤ 5498 MHz	-30 dBm	1 MHz	
5751 MHz ≤ f ≤ 6776 MHz			
7424 MHz ≤ f ≤ 8449 MHz			
	ts for DC_7A_ı	n1A Configuration	
7424 MHz ≤ f ≤ 8449 MHz  Test requiremer  520 MHz ≤ f ≤ 650 MHz	its for DC_7A_i -36 dBm	n1A Configuration 100 kHz	
7424 MHz ≤ f ≤ 8449 MHz  Test requirement  520 MHz ≤ f ≤ 650 MHz  1270 MHz ≤ f ≤ 1460 MHz			
7424 MHz ≤ f ≤ 8449 MHz  Test requiremer  520 MHz ≤ f ≤ 650 MHz  1270 MHz ≤ f ≤ 1460 MHz  3020 MHz ≤ f ≤ 3220 MHz	-36 dBm	100 kHz	
$7424 \text{ MHz} \le \text{f} \le 8449 \text{ MHz}$ Test requirements $520 \text{ MHz} \le \text{f} \le 650 \text{ MHz}$ $1270 \text{ MHz} \le \text{f} \le 1460 \text{ MHz}$ $3020 \text{ MHz} \le \text{f} \le 3220 \text{ MHz}$ $4420 \text{ MHz} \le \text{f} \le 4550 \text{ MHz}$			
$7424 \text{ MHz} \le \text{f} \le 8449 \text{ MHz}$	-36 dBm	100 kHz	
$7424 \text{ MHz} \le \text{f} \le 8449 \text{ MHz}$ Test requirements $520 \text{ MHz} \le \text{f} \le 650 \text{ MHz}$ $1270 \text{ MHz} \le \text{f} \le 1460 \text{ MHz}$ $3020 \text{ MHz} \le \text{f} \le 3220 \text{ MHz}$ $4420 \text{ MHz} \le \text{f} \le 4550 \text{ MHz}$ $6340 \text{ MHz} \le \text{f} \le 6530 \text{ MHz}$ $6920 \text{ MHz} \le \text{f} \le 7120 \text{ MHz}$	-36 dBm -30 dBm	100 kHz 1 MHz	
	-36 dBm -30 dBm	100 kHz  1 MHz  13A Configuration	
	-36 dBm -30 dBm	100 kHz 1 MHz	
$ \begin{array}{c c} 7424 \text{ MHz} \leq f \leq 8449 \text{ MHz} \\ \hline \textbf{Test requiremer} \\ \hline 520 \text{ MHz} \leq f \leq 650 \text{ MHz} \\ \hline 1270 \text{ MHz} \leq f \leq 1460 \text{ MHz} \\ 3020 \text{ MHz} \leq f \leq 3220 \text{ MHz} \\ 4420 \text{ MHz} \leq f \leq 4550 \text{ MHz} \\ 6340 \text{ MHz} \leq f \leq 6530 \text{ MHz} \\ 6920 \text{ MHz} \leq f \leq 7120 \text{ MHz} \\ \hline \textbf{Test requiremer} \\ \hline 715 \text{ MHz} \leq f < 1000 \text{ MHz} \\ \hline 1000 \text{ MHz} \leq f \leq 1070 \text{ MHz} \\ \hline \end{array} $	-36 dBm -30 dBm	100 kHz  1 MHz  13A Configuration	
$ \begin{array}{c c} 7424 \text{ MHz} \leq f \leq 8449 \text{ MHz} \\ \hline \textbf{Test requiremer} \\ \hline 520 \text{ MHz} \leq f \leq 650 \text{ MHz} \\ \hline 1270 \text{ MHz} \leq f \leq 1460 \text{ MHz} \\ 3020 \text{ MHz} \leq f \leq 3220 \text{ MHz} \\ 4420 \text{ MHz} \leq f \leq 4550 \text{ MHz} \\ 6340 \text{ MHz} \leq f \leq 6530 \text{ MHz} \\ 6920 \text{ MHz} \leq f \leq 7120 \text{ MHz} \\ \hline \textbf{Test requiremer} \\ \hline 715 \text{ MHz} \leq f < 1000 \text{ MHz} \\ \hline 1000 \text{ MHz} \leq f \leq 3430 \text{ MHz} \\ \hline 3215 \text{ MHz} \leq f \leq 3430 \text{ MHz} \\ \hline \end{array} $	-36 dBm -30 dBm  hts for DC_7A_1 -36 dBm	100 kHz  1 MHz  13A Configuration  100 kHz	
$ \begin{array}{c c} 7424 \text{ MHz} \leq f \leq 8449 \text{ MHz} \\ \hline \textbf{Test requiremer} \\ \hline 520 \text{ MHz} \leq f \leq 650 \text{ MHz} \\ \hline 1270 \text{ MHz} \leq f \leq 1460 \text{ MHz} \\ 3020 \text{ MHz} \leq f \leq 3220 \text{ MHz} \\ 4420 \text{ MHz} \leq f \leq 4550 \text{ MHz} \\ 6340 \text{ MHz} \leq f \leq 6530 \text{ MHz} \\ 6920 \text{ MHz} \leq f \leq 7120 \text{ MHz} \\ \hline \textbf{Test requiremer} \\ \hline 715 \text{ MHz} \leq f < 1000 \text{ MHz} \\ \hline 1000 \text{ MHz} \leq f \leq 3430 \text{ MHz} \\ 4210 \text{ MHz} \leq f \leq 4355 \text{ MHz} \\ \end{array} $	-36 dBm -30 dBm	100 kHz  1 MHz  13A Configuration	
$ \begin{array}{c c} 7424 \text{ MHz} \leq f \leq 8449 \text{ MHz} \\ \hline \textbf{Test requiremer} \\ \hline 520 \text{ MHz} \leq f \leq 650 \text{ MHz} \\ \hline 1270 \text{ MHz} \leq f \leq 1460 \text{ MHz} \\ \hline 3020 \text{ MHz} \leq f \leq 3220 \text{ MHz} \\ \hline 4420 \text{ MHz} \leq f \leq 4550 \text{ MHz} \\ \hline 6340 \text{ MHz} \leq f \leq 6530 \text{ MHz} \\ \hline 6920 \text{ MHz} \leq f \leq 7120 \text{ MHz} \\ \hline \hline \textbf{Test requiremer} \\ \hline 715 \text{ MHz} \leq f < 1000 \text{ MHz} \\ \hline 1000 \text{ MHz} \leq f \leq 1070 \text{ MHz} \\ \hline 3215 \text{ MHz} \leq f \leq 3430 \text{ MHz} \\ \hline 4210 \text{ MHz} \leq f \leq 6140 \text{ MHz} \\ \hline 5920 \text{ MHz} \leq f \leq 6140 \text{ MHz} \\ \hline \end{array} $	-36 dBm -30 dBm  hts for DC_7A_1 -36 dBm	100 kHz  1 MHz  13A Configuration  100 kHz	
$7424 \text{ MHz} \le \text{f} \le 8449 \text{ MHz}$ Test requirement $520 \text{ MHz} \le \text{f} \le 650 \text{ MHz}$ $1270 \text{ MHz} \le \text{f} \le 1460 \text{ MHz}$ $3020 \text{ MHz} \le \text{f} \le 3220 \text{ MHz}$ $4420 \text{ MHz} \le \text{f} \le 4550 \text{ MHz}$ $6340 \text{ MHz} \le \text{f} \le 6530 \text{ MHz}$ $6920 \text{ MHz} \le \text{f} \le 7120 \text{ MHz}$ Test requirement $715 \text{ MHz} \le \text{f} < 1000 \text{ MHz}$ $1000 \text{ MHz} \le \text{f} < 1070 \text{ MHz}$ $3215 \text{ MHz} \le \text{f} \le 3430 \text{ MHz}$ $4210 \text{ MHz} \le \text{f} \le 4355 \text{ MHz}$ $5920 \text{ MHz} \le \text{f} \le 6140 \text{ MHz}$ $6710 \text{ MHz} \le \text{f} \le 6925 \text{ MHz}$	-36 dBm -30 dBm  ets for DC_7A_1 -36 dBm  -30 dBm	100 kHz  1 MHz  13A Configuration 100 kHz  1 MHz	
	-36 dBm -30 dBm  its for DC_7A_i -36 dBm  -30 dBm	100 kHz  1 MHz  13A Configuration 100 kHz  1 MHz	
	-36 dBm -30 dBm  ets for DC_7A_1 -36 dBm  -30 dBm	100 kHz  1 MHz  13A Configuration 100 kHz  1 MHz	
	-36 dBm -30 dBm  its for DC_7A_i -36 dBm  -30 dBm	100 kHz  1 MHz  13A Configuration 100 kHz  1 MHz	
	-36 dBm -30 dBm  its for DC_7A_i -36 dBm  -30 dBm	100 kHz  1 MHz  13A Configuration 100 kHz  1 MHz	
	-36 dBm  -30 dBm  -36 dBm  -36 dBm  -30 dBm  -30 dBm  -30 dBm	100 kHz  1 MHz  1 MHz  100 kHz  1 MHz  1 MHz  1 MHz  1 MHz	
	-36 dBm  -30 dBm  ts for DC_7A_1  -36 dBm  -30 dBm  ts for DC_7A_1  -36 dBm  -30 dBm	100 kHz  1 MHz	
Test requirement 1270 MHz ≤ f ≤ 8449 MHz 1270 MHz ≤ f ≤ 650 MHz 1270 MHz ≤ f ≤ 1460 MHz 3020 MHz ≤ f ≤ 3220 MHz 4420 MHz ≤ f ≤ 4550 MHz 6340 MHz ≤ f ≤ 6530 MHz 6920 MHz ≤ f ≤ 7120 MHz 12710 MHz 12710 MHz ≤ f ≤ 1070 MHz 12710 MHz ≤ f ≤ 1070 MHz 12710 MHz ≤ f ≤ 3430 MHz 12710 MHz ≤ f ≤ 3435 MHz 12710 MHz ≤ f ≤ 6140 MHz 12710 MHz ≤ f ≤ 6925 MHz 12710 MHz ≤ f ≤ 6925 MHz 12710 MHz ≤ f ≤ 922 MHz 12710 MHz ≤ f ≤ 1746 MHz 12710 MHz ≤ f ≤ 3419 MHz 12710 MHz ≤ f ≤ 3419 MHz 12710 MHz ≤ f ≤ 3410 MHz 12710 MHz ≤ f ≤ 3410 MHz 12710 MHz ≤ f ≤ 5989 MHz 1200 MHz 5824 MHz ≤ f ≤ 5989 MHz 1200 MHz 5824 MHz ≤ f ≤ 5989 MHz 1200 MHz 5824 MHz ≤ f ≤ 5989 MHz 1200 MHz 5824 MHz ≤ f ≤ 5989 MHz 1200 MHz 5824 MHz ≤ f ≤ 5989 MHz 1200 MHz 5820 MHz 1200 MHz 5824 MHz ≤ f ≤ 5989 MHz 1200 MHz 5820 MHz 1200	-36 dBm  -30 dBm  ts for DC_7A_I -36 dBm  -30 dBm  ts for DC_7A_I -36 dBm  -30 dBm	100 kHz  1 MHz	
	-36 dBm  -30 dBm  ts for DC_7A_1  -36 dBm  -30 dBm  ts for DC_7A_1  -36 dBm  -30 dBm	100 kHz  1 MHz	
Test requirement 1270 MHz ≤ f ≤ 8449 MHz 1270 MHz ≤ f ≤ 650 MHz 1270 MHz ≤ f ≤ 1460 MHz 3020 MHz ≤ f ≤ 3220 MHz 4420 MHz ≤ f ≤ 4550 MHz 6340 MHz ≤ f ≤ 6530 MHz 6920 MHz ≤ f ≤ 7120 MHz 12000 MHz ≤ f ≤ 1070 MHz 1000 MHz ≤ f ≤ 1070 MHz 3215 MHz ≤ f ≤ 3430 MHz 4210 MHz ≤ f ≤ 4355 MHz 5920 MHz ≤ f ≤ 6925 MHz 1651 MHz ≤ f ≤ 6925 MHz 1651 MHz ≤ f ≤ 922 MHz 1651 MHz ≤ f ≤ 3419 MHz 1651 MHz ≤ f ≤ 5989 MHz 1652 MHz ≤ f ≤ 5989 MHz 1654 MHz ≤ f ≤ 5989 MHz 1655 MHz ≤ f ≤ 810 MHz 1585 MHz ≤ f ≤ 1690 MHz 1585 MHz ≤ f ≤ 1690 MHz 1585 MHz ≤ f ≤ 1690 MHz	-36 dBm  -30 dBm  ts for DC_7A_I -36 dBm  -30 dBm  ts for DC_7A_I -36 dBm  -30 dBm	100 kHz  1 MHz	
Test requirement 1270 MHz ≤ f ≤ 650 MHz 1270 MHz ≤ f ≤ 650 MHz 1270 MHz ≤ f ≤ 1460 MHz 3020 MHz ≤ f ≤ 3220 MHz 4420 MHz ≤ f ≤ 4550 MHz 6340 MHz ≤ f ≤ 6530 MHz 6920 MHz ≤ f ≤ 7120 MHz 1270 MHz ≤ f ≤ 1070 MHz 1270 MHz ≤ f ≤ 1070 MHz 1270 MHz ≤ f ≤ 3430 MHz 4210 MHz ≤ f ≤ 3435 MHz 1270 MHz ≤ f ≤ 6925 MHz 1270 MHz ≤ f ≤ 6925 MHz 1270 MHz ≤ f ≤ 6925 MHz 1270 MHz ≤ f ≤ 922 MHz 1270 MHz ≤ f ≤ 1746 MHz 1270 MHz ≤ f ≤ 3419 MHz 1270 MHz ≤ f ≤ 3419 MHz 1270 MHz ≤ f ≤ 3419 MHz 1270 MHz ≤ f ≤ 5989 MHz 1270 MHz ≤ f ≤ 5989 MHz 1270 MHz ≤ f ≤ 1690 MHz 1585 MHz ≤ f ≤ 1690 MHz 1585 MHz ≤ f ≤ 3485 MHz 1270 MHz 1270 MHz 1585 MHz ≤ f ≤ 3485 MHz 1270 MHz 1270 MHz 1270 MHz 1585 MHz 1585 MHz 1270 MHz 1270 MHz 1585 MHz 1585 MHz 1270 MHz 1270 MHz 1585 MHz 1585 MHz 1585 MHz 1270 MHz 1270 MHz 1585 MHz 1585 MHz 1585 MHz 1585 MHz 1585 MHz 1270 MHz 1585 MHz	-36 dBm  -30 dBm  ts for DC_7A_I -36 dBm  -30 dBm  ts for DC_7A_I -36 dBm  -30 dBm	100 kHz  1 MHz	
Test requirement 1270 MHz ≤ f ≤ 8449 MHz 1270 MHz ≤ f ≤ 650 MHz 1270 MHz ≤ f ≤ 1460 MHz 3020 MHz ≤ f ≤ 3220 MHz 4420 MHz ≤ f ≤ 4550 MHz 6340 MHz ≤ f ≤ 6530 MHz 6920 MHz ≤ f ≤ 7120 MHz 12000 MHz ≤ f ≤ 1070 MHz 1000 MHz ≤ f ≤ 1070 MHz 3215 MHz ≤ f ≤ 3430 MHz 4210 MHz ≤ f ≤ 4355 MHz 5920 MHz ≤ f ≤ 6925 MHz 1651 MHz ≤ f ≤ 6925 MHz 1651 MHz ≤ f ≤ 922 MHz 1651 MHz ≤ f ≤ 3419 MHz 1651 MHz ≤ f ≤ 5989 MHz 1652 MHz ≤ f ≤ 5989 MHz 1654 MHz ≤ f ≤ 5989 MHz 1655 MHz ≤ f ≤ 810 MHz 1585 MHz ≤ f ≤ 1690 MHz 1585 MHz ≤ f ≤ 1690 MHz 1585 MHz ≤ f ≤ 1690 MHz	-36 dBm  -30 dBm  -36 dBm  -36 dBm  -30 dBm  -30 dBm  -30 dBm  -36 dBm  -36 dBm	100 kHz  1 MHz  1 MHz	

Tost requirement	te for DC 7A n	28A Configuration	
1004 MHz ≤ f ≤ 1164 MHz			
1752 MHz ≤ f ≤ 1867 MHz			
3203 MHz ≤ f ≤ 3318 MHz			
3906 MHz ≤ f ≤ 4066 MHz	-30 dBm	1 MHz	
3906 MHZ ≤ 1 ≤ 4006 MHZ 4252 MHz ≤ f ≤ 4437 MHz			
5703 MHz ≤ f ≤ 5888 MHz			
	ts for DC 7A n	78A Configuration	
730 MHz ≤ f ≤ 1000 MHz	-36 dBm	100 kHz	
1000 MHz ≤ f ≤ 1840 MHz	-30 dDill	100 KI IZ	
4030 MHz ≤ f ≤ 5100 MHz			
5800 MHz ≤ f ≤ 6370 MHz	-30 dBm	1 MHz	
8300 MHz ≤ f ≤ 8940 MHz	-30 dbiii	1 1011 12	
9100 MHz ≤ f ≤ 10170 MHz			
	ts for DC 8A i	n1A Configuration	l
90 MHz ≤ f ≤ 220 MHz	-36 dBm	100 kHz	
1005 MHz ≤ f ≤ 1100 MHz	-30 dbiii	100 KHZ	
2800 MHz ≤ f ≤ 2895 MHz			
2925 MHz ≤ f ≤ 3080 MHz	-30 dBm	1 MHz	
3680 MHz ≤ f ≤ 3810 MHz	-30 dbiii	1 1011 12	
4720 MHz ≤ f ≤ 4875 MHz			
	ts for DC 84	n3A Configuration	l .
25 MHz ≤ f < 30 MHz	-36 dBm	10 kHz	
30 MHz ≤ f ≤ 120 MHz			
795 MHz ≤ f ≤ 905 MHz	-36 dBm	100 kHz	
2505 MHz ≤ f ≤ 2700 MHz			
$3470 \text{ MHz} \le f \le 3615 \text{ MHz}$	-30 dBm	1 MHz	
4300 MHz ≤ f ≤ 4485 MHz	OO GBIII	1 1711 12	
	ts for DC 8A n	20A Configuration	I
18 MHz ≤ f < 30 MHz	-36 dBm	10 kHz	
30 MHz ≤ f ≤ 83 MHz	00 0.2		
749 MHz ≤ f ≤ 844 MHz	-36 dBm	100 kHz	
898 MHz ≤ f ≤ 998 MHz			
1712 MHz ≤ f ≤ 1777 MHz			
2544 MHz ≤ f ≤ 2692 MHz	-30 dBm	1 MHz	
	ts for DC 8A n	28A Configuration	•
132 MHz ≤ f ≤ 212 MHz			
491 MHz ≤ f ≤ 616 MHz	-36 dBm	100 kHz	
1012 MHz ≤ f ≤ 1127 MHz			
1583 MHz ≤ f ≤ 1663 MHz	00 dD	4 MIL	
2286 MHz ≤ f ≤ 2411 MHz	-30 dBm	1 MHz	
2463 MHz ≤ f ≤ 2578 MHz			
Test requirement	ts for DC_8A_n	41A Configuration	
666 MHz ≤ f ≤ 930 MHz	-36 dBm	100 kHz	
1581MHz ≤ f ≤ 1810 MHz	-30 dBm	1 MHz	2
3376MHz ≤ f ≤ 3605 MHz			
4077MHz ≤ f ≤ 4520 MHz	-25 dBm	1 MHz	1
5872MHz ≤ f ≤ 6295 MHz			
	ts for DC_8A_n	77A Configuration	
1470 MHz ≤ f ≤ 3320 MHz	-30 dBm	1 MHz	
4180 MHz ≤ f ≤ 9315 MHz			
	ts for DC_8A_n	78A Configuration	
1470 MHz ≤ f ≤ 2040 MHz			
2385 MHz ≤ f ≤ 2920 MHz			
4180 MHz ≤ f ≤ 4715 MHz	-30 dBm	1 MHz	
5060 MHz ≤ f ≤ 5630 MHz	JO GENT	I IVII IZ	
5685 MHz ≤ f ≤ 6720 MHz			
7480 MHz ≤ f ≤ 8515 MHz			
-		n77A Configuration	1
404.2 MHz ≤ f ≤ 1000 MHz	-36 dBm	100 kHz	
1000 MHz ≤ f ≤ 1344.2 MHz			
1852.1 MHz ≤ f ≤ 2772.1 MHz	-30 dBm	4 NALI-	
	50 (1511)	1 MHz	l
4727.9 MHz ≤ f ≤ 7095.8 MHz	00 05		
8027.9 MHz ≤ f ≤ 9847.9 MHz			
8027.9 MHz ≤ f ≤ 9847.9 MHz  Test requirements		n78A Configuration	
8027.9 MHz ≤ f ≤ 9847.9 MHz		n78A Configuration 100 kHz	

1852.1 MHz ≤ f ≤ 2372.1 MHz						
4727.9 MHz ≤ f ≤ 6695.8 MHz	-30 dBm	1 MHz				
8027.9 MHz ≤ f ≤ 9047.9 MHz						
	s for DC_11A_r	79A Configuration				
1504.2 MHz ≤ f ≤ 2144.2 MHz						
2952.1 MHz ≤ f ≤ 3572.1 MHz						
5827.9 MHz ≤ f ≤ 6447.9 MHz	-30 dBm	1 MHz				
7255.8 MHz ≤ f ≤ 8572.1 MHz	JO GENT	1 1011 12				
10227.9 MHz ≤ f ≤ 11447.9						
MHz						
Test requirements for DC_12A_n66A Configuration						
278 MHz ≤ f ≤ 382 MHz	-36 dBm	100 kHz				
994 MHz ≤ f < 1000 MHz	00 dBiii	100 1(1)2				
1000 MHz ≤ f ≤ 1081 MHz						
2409 MHz ≤ f ≤ 2496 MHz						
2704 MHz ≤ f ≤ 2861 MHz	-30 dBm	1 MHz				
3108 MHz ≤ f ≤ 3212 MHz						
4119 MHz ≤ f ≤ 4276 MHz						
	s for DC_12A_r	178A Configuration				
1868 MHz ≤ f ≤ 2402 MHz						
2584 MHz ≤ f ≤ 3101 MHz						
3999 MHz ≤ f ≤ 4516 MHz	-30 dBm	1 MHz				
4698 MHz ≤ f ≤ 5232 MHz						
5884 MHz ≤ f ≤ 6901 MHz						
7299 MHz ≤ f ≤ 8316 MHz	(- f DO 401					
		n2A Configuration				
276 MHz ≤ f ≤ 356 MHz	-36 dBm	100 kHz				
1063 MHz ≤ f ≤ 1133 MHz						
2627 MHz ≤ f ≤ 2697 MHz	20 dD	4 MII-				
2913 MHz ≤ f ≤ 3043 MHz 3404 MHz ≤ f ≤ 3484 MHz	-30 dBm	1 MHz				
4477 MHz ≤ f ≤ 4607 MHz						
	e for DC 13A r	1 166A Configuration				
•	3 101 DC_13A_1	100A Configuration				
1 126 NIU2 < t < 226 NIU2						
136 MHz ≤ f ≤ 226 MHz	-36 dBm	100 kHz				
923 MHz ≤ f ≤ 1000 MHz	-36 dBm	100 kHz				
923 MHz ≤ f ≤ 1000 MHz 1000 MHz ≤ f ≤ 1003 MHz	-36 dBm	100 kHz				
923 MHz ≤ f ≤ 1000 MHz 1000 MHz ≤ f ≤ 1003 MHz 2487 MHz ≤ f ≤ 2567 MHz						
923 MHz ≤ f ≤ 1000 MHz 1000 MHz ≤ f ≤ 1003 MHz 2487 MHz ≤ f ≤ 2567 MHz 2633 MHz ≤ f ≤ 2783 MHz	-36 dBm	100 kHz 1 MHz				
923 MHz ≤ f ≤ 1000 MHz 1000 MHz ≤ f ≤ 1003 MHz 2487 MHz ≤ f ≤ 2567 MHz 2633 MHz ≤ f ≤ 2783 MHz 3264 MHz ≤ f ≤ 3354 MHz						
923 MHz $\leq$ f $\leq$ 1000 MHz 1000 MHz $\leq$ f $\leq$ 1003 MHz 2487 MHz $\leq$ f $\leq$ 2567 MHz 2633 MHz $\leq$ f $\leq$ 2783 MHz 3264 MHz $\leq$ f $\leq$ 3354 MHz 4197 MHz $\leq$ f $\leq$ 4347 MHz	-30 dBm	1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement	-30 dBm					
923 MHz $\leq$ f $\leq$ 1000 MHz 1000 MHz $\leq$ f $\leq$ 1003 MHz 2487 MHz $\leq$ f $\leq$ 2567 MHz 2633 MHz $\leq$ f $\leq$ 2783 MHz 3264 MHz $\leq$ f $\leq$ 3354 MHz 4197 MHz $\leq$ f $\leq$ 4347 MHz	-30 dBm	1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz	-30 dBm s for DC_13A_r	1 MHz				
$\begin{array}{c} 923 \text{ MHz} \leq f \leq 1000 \text{ MHz} \\ 1000 \text{ MHz} \leq f \leq 1003 \text{ MHz} \\ 2487 \text{ MHz} \leq f \leq 2567 \text{ MHz} \\ 2633 \text{ MHz} \leq f \leq 2783 \text{ MHz} \\ 3264 \text{ MHz} \leq f \leq 3354 \text{ MHz} \\ 4197 \text{ MHz} \leq f \leq 4347 \text{ MHz} \\ \hline \textbf{Test requirement}} \\ 1726 \text{ MHz} \leq f \leq 3423 \text{ MHz} \\ 4077 \text{ MHz} \leq f \leq 5774 \text{ MHz} \\ 5813 \text{ MHz} \leq f \leq 9187 \text{ MHz} \\ \end{array}$	-30 dBm s for DC_13A_r -30 dBm	1 MHz				
$\begin{array}{c} 923 \text{ MHz} \leq f \leq 1000 \text{ MHz} \\ 1000 \text{ MHz} \leq f \leq 1003 \text{ MHz} \\ 2487 \text{ MHz} \leq f \leq 2567 \text{ MHz} \\ 2633 \text{ MHz} \leq f \leq 2783 \text{ MHz} \\ 3264 \text{ MHz} \leq f \leq 3354 \text{ MHz} \\ 4197 \text{ MHz} \leq f \leq 4347 \text{ MHz} \\ \hline \textbf{Test requirement}} \\ 1726 \text{ MHz} \leq f \leq 3423 \text{ MHz} \\ 4077 \text{ MHz} \leq f \leq 5774 \text{ MHz} \\ 5813 \text{ MHz} \leq f \leq 9187 \text{ MHz} \\ \end{array}$	-30 dBm s for DC_13A_r -30 dBm	1 MHz 1 MHz 1 MHz				
$\begin{array}{c} 923 \text{ MHz} \leq f \leq 1000 \text{ MHz} \\ 1000 \text{ MHz} \leq f \leq 1003 \text{ MHz} \\ 2487 \text{ MHz} \leq f \leq 2567 \text{ MHz} \\ 2633 \text{ MHz} \leq f \leq 2783 \text{ MHz} \\ 3264 \text{ MHz} \leq f \leq 3354 \text{ MHz} \\ 4197 \text{ MHz} \leq f \leq 4347 \text{ MHz} \\ \hline \textbf{Test requirement} \\ 1726 \text{ MHz} \leq f \leq 3423 \text{ MHz} \\ 4077 \text{ MHz} \leq f \leq 5774 \text{ MHz} \\ 5813 \text{ MHz} \leq f \leq 9187 \text{ MHz} \\ \hline \textbf{Test requirement} \\ \end{array}$	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A_	1 MHz  177A Configuration  1 MHz  12A Configuration				
$\begin{array}{c} 923 \text{ MHz} \leq f \leq 1000 \text{ MHz} \\ 1000 \text{ MHz} \leq f \leq 1003 \text{ MHz} \\ 2487 \text{ MHz} \leq f \leq 2567 \text{ MHz} \\ 2633 \text{ MHz} \leq f \leq 2783 \text{ MHz} \\ 3264 \text{ MHz} \leq f \leq 3354 \text{ MHz} \\ 4197 \text{ MHz} \leq f \leq 4347 \text{ MHz} \\ \hline \textbf{Test requirement} \\ 1726 \text{ MHz} \leq f \leq 3423 \text{ MHz} \\ 4077 \text{ MHz} \leq f \leq 5774 \text{ MHz} \\ 5813 \text{ MHz} \leq f \leq 9187 \text{ MHz} \\ \hline \textbf{Test requirement} \\ 254 \text{ MHz} \leq f \leq 334 \text{ MHz} \\ 1052 \text{ MHz} \leq f \leq 1122 \text{ MHz} \\ 2638 \text{ MHz} \leq f \leq 2708 \text{ MHz} \\ \end{array}$	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A_	1 MHz  177A Configuration  1 MHz  12A Configuration				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A_	1 MHz  177A Configuration  1 MHz  12A Configuration				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm	1 MHz  1 MHz  1 MHz  1 MHz  100 kHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm -30 dBm	1 MHz  1 MHz  1 MHz  1 MHz  100 kHz  1 MHz				
$\begin{array}{c} 923 \text{ MHz} \leq f \leq 1000 \text{ MHz} \\ 1000 \text{ MHz} \leq f \leq 1003 \text{ MHz} \\ 2487 \text{ MHz} \leq f \leq 2567 \text{ MHz} \\ 2633 \text{ MHz} \leq f \leq 2783 \text{ MHz} \\ 3264 \text{ MHz} \leq f \leq 3354 \text{ MHz} \\ 4197 \text{ MHz} \leq f \leq 4347 \text{ MHz} \\ \hline \textbf{Test requirement} \\ 1726 \text{ MHz} \leq f \leq 3423 \text{ MHz} \\ 4077 \text{ MHz} \leq f \leq 5774 \text{ MHz} \\ 5813 \text{ MHz} \leq f \leq 9187 \text{ MHz} \\ \hline \textbf{Test requirement} \\ 254 \text{ MHz} \leq f \leq 334 \text{ MHz} \\ 1052 \text{ MHz} \leq f \leq 334 \text{ MHz} \\ 2638 \text{ MHz} \leq f \leq 2708 \text{ MHz} \\ 2902 \text{ MHz} \leq f \leq 3032 \text{ MHz} \\ 3426 \text{ MHz} \leq f \leq 4618 \text{ MHz} \\ \hline \textbf{Test requirement} \\ \hline \end{array}$	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm -30 dBm	1 MHz  1 MHz  1 MHz  1 MHz  100 kHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm -30 dBm s for DC_14A_r	1 MHz				
$\begin{array}{c} 923 \text{ MHz} \leq f \leq 1000 \text{ MHz} \\ 1000 \text{ MHz} \leq f \leq 1003 \text{ MHz} \\ 2487 \text{ MHz} \leq f \leq 2567 \text{ MHz} \\ 2633 \text{ MHz} \leq f \leq 2783 \text{ MHz} \\ 3264 \text{ MHz} \leq f \leq 3354 \text{ MHz} \\ 4197 \text{ MHz} \leq f \leq 4347 \text{ MHz} \\ \hline \textbf{Test requirement} \\ 1726 \text{ MHz} \leq f \leq 3423 \text{ MHz} \\ 4077 \text{ MHz} \leq f \leq 5774 \text{ MHz} \\ 5813 \text{ MHz} \leq f \leq 9187 \text{ MHz} \\ \hline \textbf{Test requirement} \\ 254 \text{ MHz} \leq f \leq 334 \text{ MHz} \\ 1052 \text{ MHz} \leq f \leq 334 \text{ MHz} \\ 2638 \text{ MHz} \leq f \leq 2708 \text{ MHz} \\ 2902 \text{ MHz} \leq f \leq 3032 \text{ MHz} \\ 3426 \text{ MHz} \leq f \leq 4618 \text{ MHz} \\ \hline \textbf{Test requirement} \\ \hline \end{array}$	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm -30 dBm	1 MHz  1 MHz  1 MHz  1 MHz  100 kHz  1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm -30 dBm s for DC_14A_r	1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz  912 MHz ≤ f ≤ 992 MHz  2498 MHz ≤ f ≤ 2578 MHz  2622 MHz ≤ f ≤ 2772 MHz	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm -30 dBm s for DC_14A_r -36 dBm	1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz  912 MHz ≤ f ≤ 992 MHz  2498 MHz ≤ f ≤ 2578 MHz  2622 MHz ≤ f ≤ 2772 MHz  3286 MHz ≤ f ≤ 3376 MHz	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm -30 dBm s for DC_14A_r	1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz  912 MHz ≤ f ≤ 992 MHz  2498 MHz ≤ f ≤ 2578 MHz  2622 MHz ≤ f ≤ 2772 MHz	-30 dBm s for DC_13A_r -30 dBm ts for DC_14A36 dBm -30 dBm s for DC_14A_r -36 dBm	1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz  912 MHz ≤ f ≤ 992 MHz  2498 MHz ≤ f ≤ 2772 MHz  3286 MHz ≤ f ≤ 4358 MHz  4208 MHz ≤ f ≤ 4358 MHz	-30 dBm  s for DC_13A_r  -30 dBm  ts for DC_14A_  -36 dBm  -30 dBm  s for DC_14A_r  -36 dBm  -30 dBm	1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 1122 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz  912 MHz ≤ f ≤ 992 MHz  2498 MHz ≤ f ≤ 2578 MHz  2622 MHz ≤ f ≤ 2772 MHz  3286 MHz ≤ f ≤ 4358 MHz  Test requirement  Test requirement	-30 dBm  s for DC_13A_r  -30 dBm  ts for DC_14A_  -36 dBm  -30 dBm  s for DC_14A_r  -36 dBm  -30 dBm	1 MHz  1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  254 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz  912 MHz ≤ f ≤ 992 MHz  2498 MHz ≤ f ≤ 2772 MHz  3286 MHz ≤ f ≤ 4358 MHz  4208 MHz ≤ f ≤ 4358 MHz	-30 dBm  s for DC_13A_r  -30 dBm  ts for DC_14A_  -36 dBm  -30 dBm  s for DC_14A_r  -36 dBm	1 MHz  1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 2708 MHz  2902 MHz ≤ f ≤ 332 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz  912 MHz ≤ f ≤ 992 MHz  2498 MHz ≤ f ≤ 2578 MHz  2622 MHz ≤ f ≤ 3376 MHz  4208 MHz ≤ f ≤ 4358 MHz  Test requirement  1640 MHz ≤ f ≤ 3385 MHz	-30 dBm  s for DC_13A_r  -30 dBm  ts for DC_14A_  -36 dBm  -30 dBm  s for DC_14A_r  -36 dBm  -30 dBm	1 MHz  1 MHz				
923 MHz ≤ f ≤ 1000 MHz  1000 MHz ≤ f ≤ 1003 MHz  2487 MHz ≤ f ≤ 2567 MHz  2633 MHz ≤ f ≤ 2783 MHz  3264 MHz ≤ f ≤ 3354 MHz  4197 MHz ≤ f ≤ 4347 MHz  Test requirement  1726 MHz ≤ f ≤ 3423 MHz  4077 MHz ≤ f ≤ 5774 MHz  5813 MHz ≤ f ≤ 9187 MHz  Test requirement  1052 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 1122 MHz  2638 MHz ≤ f ≤ 334 MHz  1052 MHz ≤ f ≤ 3032 MHz  3426 MHz ≤ f ≤ 3506 MHz  4488 MHz ≤ f ≤ 4618 MHz  Test requirement  114 MHz ≤ f ≤ 204 MHz  912 MHz ≤ f ≤ 992 MHz  2498 MHz ≤ f ≤ 2578 MHz  2622 MHz ≤ f ≤ 2772 MHz  3286 MHz ≤ f ≤ 3376 MHz  4208 MHz ≤ f ≤ 4358 MHz  Test requirement  1640 MHz ≤ f ≤ 3385 MHz  4115 MHz ≤ f ≤ 5860 MHz  5770 MHz ≤ f ≤ 9230 MHz	-30 dBm  s for DC_13A_r  -30 dBm  ts for DC_14A_  -36 dBm  -30 dBm  s for DC_14A_r  -36 dBm  -30 dBm  -30 dBm	1 MHz  1 MHz				

	T	1	T
1640 MHz ≤ f ≤ 2170 MHz			
2470 MHz ≤ f ≤ 2985 MHz			
4115 MHz ≤ f ≤ 4630 MHz	-30dBm	1MHz	
4930 MHz ≤ f ≤ 5460 MHz	0002		
5770 MHz ≤ f ≤ 6785 MHz			
7415 MHz ≤ f ≤ 8430 MHz	- f DO 40A	-44 O	
		n1A Configuration	
230 MHz <= f <= 320 MHz	-36 dBm	100 kHz	
1075 MHz <= f <= 1150 MHz			
2750 MHz <= f <= 2825 MHz 2995 MHz <= f <= 3130 MHz	-30 dBm	1 MHz	
3580 MHz <= f <= 3670 MHz	-30 dbiii	I IVITZ	
4670 MHz <= f <= 4805 MHz			
	s for DC 19A i	n77A Configuration	
1610 MHz ≤ f ≤ 3370 MHz		Onligaration	
4130 MHz ≤ f ≤ 5890 MHz	-30 dBm	1 MHz	
5755 MHz ≤ f ≤ 9245 MHz	-30 dbiii	1 1011 12	
	s for DC 19A i	n78A Configuration	
1610 MHz ≤ f ≤ 2140 MHz			
2455 MHz ≤ f ≤ 2970 MHz			
4130 MHz ≤ f ≤ 4645 MHz	00.15	4.500	
4960 MHz ≤ f ≤ 5490 MHz	-30 dBm	1 MHz	
5755 MHz ≤ f ≤ 6770 MHz			
7430 MHz ≤ f ≤ 8445 MHz			
	s for DC_19A_i	n79A Configuration	
2710 MHz ≤ f ≤ 3340 MHz			
3555 MHz ≤ f ≤ 4170 MHz			
5230 MHz ≤ f ≤ 5845 MHz	-30 dBm	1 MHz	
6060 MHz ≤ f ≤ 6690 MHz	-30 dbiii	I IVII IZ	
7955 MHz ≤ f ≤ 9170 MHz			
9630 MHz ≤ f ≤ 10845 MHz			
Test requirement		n1A Configuration	
196 MHz ≤ f ≤ 316 MHz	-36 dBm	100 kHz	
1058 MHz ≤ f ≤ 1148 MHz			
2752 MHz ≤ f ≤ 2842 MHz			
2978 MHz ≤ f ≤ 3128 MHz	-30 dBm	1 MHz	
3584 MHz ≤ f ≤ 3704 MHz			
4672 MHz ≤ f ≤ 4822 MHz	to for DC 20A	m2A Configuration	
		n3A Configuration	
14 MHz ≤ f < 30 MHz	-36 dBm	10 kHz	
30 MHz ≤ f ≤ 121 MHz	-36 dBm	100 kHz	
848 MHz ≤ f ≤ 953 MHz 2542 MHz ≤ f ≤ 2738 MHz			
3374 MHz ≤ f ≤ 3509 MHz	-30 dBm	1 MHz	
4252 MHz ≤ f ≤ 4432 MHz	-30 dbiii	I IVII IZ	
	ts for DC 20A	n7A Configuration	
776 MHz ≤ f ≤ 906 MHz	-36 dBm	100 kHz	
1638 MHz ≤ f ≤ 1738 MHz	OU GENT	100 10112	
3332 MHz ≤ f ≤ 3432 MHz	0.5 1.5		
4138 MHz ≤ f ≤ 4308 MHz	-30 dBm	1 MHz	
5832 MHz ≤ f ≤ 6002 MHz			
	ts for DC 20A	n8A Configuration	1
18 MHz ≤ f < 30 MHz	-36 dBm	10 kHz	
30 MHz ≤ f ≤ 83 MHz			
749 MHz ≤ f ≤ 844 MHz	-36 dBm	100 kHz	
898 MHz ≤ f ≤ 998 MHz			
1712 MHz ≤ f ≤ 1777 MHz	30 4D	4 MALI-	
2544 MHz ≤ f ≤ 2692 MHz	-30 dBm	1 MHz	<u>                                     </u>
Test requirement	s for DC_20A_i	n28A Configuration	
84 MHz ≤ f ≤ 159 MHz			·
544 MHz ≤ f ≤ 664 MHz	-36 dBm	100 kHz	
916 MHz ≤ f ≤ 1000 MHz			
1000 MHz ≤ f ≤ 1021 MHz			
1535 MHz ≤ f ≤ 1610 MHz	-30 dBm	1 MHz	
2238 MHz ≤ f ≤ 2358 MHz	20 45111		
2367 MHz ≤ f ≤ 2472 MHz			
Test requirement			

1576 MHz ≤ f ≤ 2136 MHz 2438 MHz ≤ f ≤ 2662 MHz 4132 MHz ≤ f ≤ 5624 MHz 5738 MHz ≤ f ≤ 56768 MHz 7452 MHz ≤ f ≤ 56768 MHz 7452 MHz ≤ f ≤ 56768 MHz 7452 MHz ≤ f ≤ 5634 MHz 1581 MHz ≤ f ≤ 5632 MHz 457.1 MHz ≤ f ≤ 552.1 MHz 367.9 MHz ≤ f ≤ 552.1 MHz 367.9 MHz ≤ f ≤ 5490.5 MHz 2377.1 MHz ≤ f ≤ 521.2 1 MHz 367.9 MHz ≤ f ≤ 3492.9 MHz 4815.8 MHz ≤ f ≤ 4905.8 MHz 5267.9 MHz ≤ f ≤ 5490.5 MHz 527.9 MHz ≤ f ≤ 5490.5 MHz 100.0 MHz ≤ f ≤ 1304.2 MHz 1837.1 MHz ≤ f ≤ 2752.1 MHz 1837.1 MHz ≤ f ≤ 2752.1 MHz 1837.1 MHz ≤ f ≤ 1725.8 MHz 1837.1 MHz ≤ f ≤ 1725.8 MHz 1837.1 MHz ≤ f ≤ 7125.8 MHz 1837.1 MHz ≤ f ≤ 962.9 MHz 1837.1 MHz ≤ f ≤ 6152.1 MHz 1837.1 MHz ≤ f ≤ 6462.9 MHz 1837.1 MHz ≤ f ≤ 6462.9 MHz 1837.1 MHz ≤ f ≤ 6462.9 MHz 1837.1 MHz ≤ f ≤ 6352.1 MHz 1847.9 MHz ≤ f ≤ 6462.9 MHz 1857.1 MHz ≤ f ≤ 6352.1 MHz 1847.9 MHz ≤ f ≤ 6462.9 MHz 1857.1 MHz ≤ f ≤ 6352.1 MHz 1847.9 MHz ≤ f ≤ 6462.9 MHz 1857.1 MHz ≤ f ≤ 6352.1 MHz 1857.1 MHz ≤ f ≤ 6352.1 MHz 1867.1 MHz ≤ f ≤ 6352.1 MHz 1877.1 MHz ≤ f ≤ 6460.9 MHz 1877.1 MHz ≤ f ≤ 6352.1 MHz 1877.1 MHz ≤ f ≤ 6460.9 MHz 1877.1 MHz										
4132 MHz ≤ f ≤ 4662 MHz 4964 MHz ≤ f ≤ 56768 MHz 7432 MHz ≤ f ≤ 56768 MHz 7432 MHz ≤ f ≤ 56768 MHz 7432 MHz ≤ f ≤ 5822 MHz  Test requirements for DC_21A_n1A Configuration 457.1 MHz ≤ f ≤ 532.1 MHz 215.8 MHz ≤ f ≤ 532.1 MHz 3367.9 MHz ≤ f ≤ 5342.9 MHz 4815.8 MHz ≤ f ≤ 4905.8 MHz 5267.9 MHz ≤ f ≤ 5492.9 MHz 4815.8 MHz ≤ f ≤ 4905.8 MHz 5267.9 MHz ≤ f ≤ 1300.0 MHz 1000 MHz ≤ f ≤ 1300.2 MHz 1837.1 MHz ≤ f ≤ 2752.1 MHz 1837.1 MHz ≤ f ≤ 7752.1 MHz 1837.1 MHz ≤ f ≤ 762.8 MHz 1837.1 MHz ≤ f ≤ 762.8 MHz 1837.1 MHz ≤ f ≤ 6725.8 MHz 1837.1 MHz ≤ f ≤ 904.2 MHz 1837.1 MHz ≤ f ≤ 6725.8 MHz 1937.1										
3994 MHz ≤ f ≤ 5524 MHz										
4994 MHZ ≤ f ≤ 6768 MHz		-30 dBm	1 MHz							
Test requirements for DC_21A_n1A Configuration  457.1 MHz ≤1 ≤ 532.1 MHz 915.8 MHz ≤1 ≤ 1000 MHz 2377.1 MHz ≤1 ≤ 3442.9 MHz 3367.9 MHz ≤1 ≤ 3442.9 MHz 4315.8 MHz ≤1 ≤ 3442.9 MHz 4315.8 MHz ≤1 ≤ 3442.9 MHz  Test requirements for DC_21A_n77A Configuration  742.2 MHz ≤1 ≤ 1000 MHz 1000 MHz ≤1 ≤ 1304.2 MHz 1307.4 MHz ≤1 ≤ 1300.4 MHz 1474.9 MHz ≤1 ≤ 7125.8 MHz 374.2 MHz ≤1 ≤ 1900.4 MHz 374.2 MHz ≤1 ≤ 1904.2 MHz 374.2 MHz ≤1 ≤ 152.1 MHz 374.2 MHz ≤1 ≤ 1402.9 MHz 375.1 MHz ≤1 ≤ 1500 MHz 375.1 MHz ≤1 ≤ 1000 MHz 375.1 MHz 375.2 MHz 375.1 MHz 3		30 dBill	1 1011 12							
Test requirements for DC 21A n1A Configuration	5738 MHz ≤ f ≤ 6768 MHz									
457.1 MHz ≤ f ≤ 532.1 MHz   3367.9 MHz ≤ f ≤ 2512.1 MHz   3367.9 MHz ≤ f ≤ 3442.9 MHz   418.8 MHz ≤ f ≤ 3442.9 MHz   5287.9 MHz ≤ f ≤ 3442.9 MHz   3367.9 MHz ≤ f ≤ 5422.9 MHz   3367.9 MHz ≤ f ≤ 100.0 MHz   36 dBm   100 kHz   1000 MHz ≤ f ≤ 1304.2 MHz   336 dBm   100 kHz   1000 MHz ≤ f ≤ 1304.2 MHz   3374.2 MHz ≤ f ≤ 724.1 MHz   3474.9 MHz ≤ f ≤ 725.8 MHz   3474.9 MHz ≤ f ≤ 732.1 MHz   36 dBm   100 kHz   374.2 MHz ≤ f ≤ 3962.9 MHz   36 dBm   100 kHz   374.2 MHz ≤ f ≤ 904.2 MHz   36 dBm   100 kHz   374.2 MHz ≤ f ≤ 904.2 MHz   36 dBm   100 kHz   374.2 MHz ≤ f ≤ 6152.1 MHz   4747.9 MHz ≤ f ≤ 6152.1 MHz   4742.9 MHz ≤ f ≤ 6462.9 MHz   30 dBm   1 MHz   4742.4 MHz ≤ f ≤ 2104.2 MHz   4742.4 MHz ≤ f ≤ 3552.1 MHz   4742.4 MHz ≤ f ≤ 6462.9 MHz   30 dBm   1 MHz   4742.4 MHz ≤ f ≤ 6462.9 MHz   30 dBm   1 MHz   2047.9 MHz ≤ f ≤ 6462.9 MHz   30 dBm   1 MHz   2 dBm   30 dBm   1 MHz   3077 MHz ≤ f ≤ 360 MHz   30 dBm   1 MHz   2 dBm   30 dBm   1 MHz   2 dBm   30 dBm										
915.8 MHz ≤ f ≤ 1000 MHz   3367.9 MHz ≤ f ≤ 2512.1 MHz   3367.9 MHz ≤ f ≤ 3442.9 MHz   4815.8 MHz ≤ f ≤ 4905.8 MHz   -30 dBm	Test requirements for DC_21A_n1A Configuration									
371.5 Mirtz ≤ 1 ≤ 2512.1 Mirtz   3367.9 Mirtz ≤ 1 ≤ 2512.1 Mirtz   3367.9 Mirtz ≤ 1 ≤ 3442.9 Mirtz   3415.8 Mirtz ≤ 1 ≤ 3405.8 Mirtz   3415.8 Mirtz ≤ 1 ≤ 300.0 Mirtz   36 dBm   100 kHz   1000 Mirtz ≤ 1 ≤ 1300.4 Mirtz   374.2 Mirtz ≤ 1 ≤ 1000 Mirtz   374.2 Mirtz ≤ 1 ≤ 1725.8 Mirtz   304.2 Mirtz   374.2 Mirtz ≤ 1 ≤ 7125.8 Mirtz   374.2 Mirtz ≤ 1 ≤ 7125.8 Mirtz   374.2 Mirtz ≤ 1 ≤ 2352.1 Mirtz   304.7 9 Mirtz ≤ 1 ≤ 36725.8 Mirtz   304.7 9 Mirtz ≤ 1 ≤ 36725.8 Mirtz   304.7 9 Mirtz ≤ 1 ≤ 3652.1 Mirtz   304.7 9 Mirtz ≤ 1 ≤ 3650.0 Mirtz   304.7 9 Mirtz ≤ 1 ≤ 3650.0 Mirtz   304.7 9 Mirtz ≤ 1 ≤ 3650.0 Mirtz   304.7 9 Mirtz ≤ 1 ≤ 360.0 Mirtz   304.7	457.1 MHz ≤ f ≤ 532.1 MHz	0C 4D	400 1.11-							
3367.9 MHz ≤ f ≤ 3442.9 MHz	915.8 MHz ≤ f ≤ 1000 MHz	-36 08111	100 KHZ							
3367.9 MHz ≤ f ≤ 3442.9 MHz	2377.1 MHz ≤ f ≤ 2512.1 MHz									
A815.8 MHz ≤ f ≤ 4905.8 MHz   5287.9 MHz ≤ f ≤ 1000 MHz   -36 dBm   100 kHz   1000 MHz ≤ f ≤ 1000 MHz   -36 dBm   100 kHz   1837.1 MHz ≤ f ≤ 7125.8 MHz   4747.9 MHz ≤ f ≤ 7025.8 MHz   -30 dBm   1 MHz   1 MHz   155.8 MHz   -30 dBm   1 MHz   -36 dBm   100 kHz   -30 dBm   1 MHz   -30 dBm   1 MHz   -36 dBm   100 kHz   -30 dBm   1 MHz   -36 dBm   100 kHz   -36 dBm   -36 dBm   100 kHz   -36 dBm   100 kHz   -36 dBm   1 MHz   -36 dBm   1 MHz   -36 dBm   1 MHz   -30 dBm   1		00 10	4.541.1							
Test requirements for DC 21A_n77A Configuration  374.2 MHz ≤ f ≤ 1300 MHz  1000 MHz ≤ f ≤ 1304.2 MHz  1837.1 MHz ≤ f ≤ 2752.1 MHz  4747.9 MHz ≤ f ≤ 7125.8 MHz  8047.9 MHz ≤ f ≤ 904.2 MHz  Test requirements for DC 21A_n78A Configuration  374.2 MHz ≤ f ≤ 904.2 MHz  1837.1 MHz ≤ f ≤ 2752.1 MHz  Test requirements for DC 21A_n78A Configuration  374.2 MHz ≤ f ≤ 904.2 MHz  1837.1 MHz ≤ f ≤ 2752.1 MHz  4747.9 MHz ≤ f ≤ 6152.1 MHz  4747.9 MHz ≤ f ≤ 6152.1 MHz  4747.9 MHz ≤ f ≤ 9062.9 MHz  Test requirements for DC 21A_n79A Configuration  1474.2 MHz ≤ f ≤ 9062.9 MHz  Test requirements for DC 25A_n79A Configuration  1474.2 MHz ≤ f ≤ 3552.1 MHz  2937.1 MHz ≤ f ≤ 3552.1 MHz  5847.9 MHz ≤ f ≤ 86462.9 MHz  7295.8 MHz ≤ f ≤ 86462.9 MHz  7295.8 MHz ≤ f ≤ 86462.9 MHz  1004.7.9 MHz ≤ f ≤ 86462.9 MHz  7295.8 MHz ≤ f ≤ 86462.9 MHz  7295.8 MHz ≤ f ≤ 86462.9 MHz  1004.7 MHz ≤ f ≤ 3550 MHz  4346 MHz ≤ f ≤ 6520 MHz  6842 MHz ≤ f ≤ 6520 MHz  6842 MHz ≤ f ≤ 6520 MHz  6842 MHz ≤ f ≤ 6520 MHz  798 MHz ≤ f ≤ 1062 MHz  1000 MHz ≤ f ≤ 3539 MHz  1000 MHz ≤ f ≤ 6589 MHz  1000 MHz ≤ f ≤ 6589 MHz  1000 MHz ≤ f ≤ 6689 MHz  1000 MHz ≤ f ≤ 6489 MHz  1000 MHz ≤ f ≤ 6889 MHz  1000 MHz ≤ f ≤ 6889 MHz  1000 MHz ≤ f ≤ 68698 MHz  1000 MHz ≤ f ≤ 61860 MHz  1000 MHz ≤ f ≤ 6898 MHz  1000 MHz ≤ f ≤ 61860 MHz  1000 MHz ≤ f ≤ 6898 MHz  1000 MHz ≤ f ≤ 61860 MHz  1000 MHz ≤ f ≤ 61860 MHz  1000 MHz ≤ f ≤ 68698 MHz  1000 MHz ≤ f ≤ 61860 MHz  1	4815.8 MHz ≤ f ≤ 4905.8 MHz	-30 aBm	1 MHZ							
Test requirements for DC 21A_n77A Configuration  374.2 MHz ≤ f ≤ 1300 MHz  1000 MHz ≤ f ≤ 1304.2 MHz  1837.1 MHz ≤ f ≤ 2752.1 MHz  4747.9 MHz ≤ f ≤ 7125.8 MHz  8047.9 MHz ≤ f ≤ 904.2 MHz  Test requirements for DC 21A_n78A Configuration  374.2 MHz ≤ f ≤ 904.2 MHz  1837.1 MHz ≤ f ≤ 2752.1 MHz  Test requirements for DC 21A_n78A Configuration  374.2 MHz ≤ f ≤ 904.2 MHz  1837.1 MHz ≤ f ≤ 2752.1 MHz  4747.9 MHz ≤ f ≤ 6152.1 MHz  4747.9 MHz ≤ f ≤ 6152.1 MHz  4747.9 MHz ≤ f ≤ 9062.9 MHz  Test requirements for DC 21A_n79A Configuration  1474.2 MHz ≤ f ≤ 9062.9 MHz  Test requirements for DC 25A_n79A Configuration  1474.2 MHz ≤ f ≤ 3552.1 MHz  2937.1 MHz ≤ f ≤ 3552.1 MHz  5847.9 MHz ≤ f ≤ 86462.9 MHz  7295.8 MHz ≤ f ≤ 86462.9 MHz  7295.8 MHz ≤ f ≤ 86462.9 MHz  1004.7.9 MHz ≤ f ≤ 86462.9 MHz  7295.8 MHz ≤ f ≤ 86462.9 MHz  7295.8 MHz ≤ f ≤ 86462.9 MHz  1004.7 MHz ≤ f ≤ 3550 MHz  4346 MHz ≤ f ≤ 6520 MHz  6842 MHz ≤ f ≤ 6520 MHz  6842 MHz ≤ f ≤ 6520 MHz  6842 MHz ≤ f ≤ 6520 MHz  798 MHz ≤ f ≤ 1062 MHz  1000 MHz ≤ f ≤ 3539 MHz  1000 MHz ≤ f ≤ 6589 MHz  1000 MHz ≤ f ≤ 6589 MHz  1000 MHz ≤ f ≤ 6689 MHz  1000 MHz ≤ f ≤ 6489 MHz  1000 MHz ≤ f ≤ 6889 MHz  1000 MHz ≤ f ≤ 6889 MHz  1000 MHz ≤ f ≤ 68698 MHz  1000 MHz ≤ f ≤ 61860 MHz  1000 MHz ≤ f ≤ 6898 MHz  1000 MHz ≤ f ≤ 61860 MHz  1000 MHz ≤ f ≤ 6898 MHz  1000 MHz ≤ f ≤ 61860 MHz  1000 MHz ≤ f ≤ 61860 MHz  1000 MHz ≤ f ≤ 68698 MHz  1000 MHz ≤ f ≤ 61860 MHz  1	5287.9 MHz ≤ f ≤ 5422.9 MHz									
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A747.9 MHz ≤ f ≤ 7125.8 MHz   Test requirements for DC 21A n78A Configuration										
8047.9 MHz ≤ f ≤ 9862.9 MHz		-30 dBm	1 MHz							
Test requirements for DC_21A_n78A Configuration										
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1837.1 MHz ≤ f ≤ 2352.1 MHz										
4747.9 MHz ≤ f ≤ 6752.1 MHz 6195.8 MHz ≤ f ≤ 9062.9 MHz  Test requirements for DC_21A_n79A Configuration  1474.2 MHz ≤ f ≤ 2104.2 MHz 2937.1 MHz ≤ f ≤ 2404.2 MHz 2937.1 MHz ≤ f ≤ 6762.9 MHz 7295.8 MHz ≤ f ≤ 6852.1 MHz 10247.9 MHz ≤ f ≤ 11462.9  MHz  Test requirements for DC_25A_n41A Configuration  581 MHz ≤ f ≤ 8552.1 MHz 1010 MHz ≤ f ≤ 1334 MHz 3010 MHz ≤ f ≤ 3330 MHz 4346 MHz ≤ f ≤ 4605 MHz 6196 MHz ≤ f ≤ 6520 MHz 6196 MHz ≤ f ≤ 6520 MHz 6842 MHz ≤ f ≤ 7295 MHz  Test requirements for DC_26A_n41A Configuration  798 MHz ≤ f < 1000 MHz 798 MHz ≤ f < 1000 MHz 1000 MHz ≤ f ≤ 1006 MHz 1000 MHz ≤ f ≤ 1066 MHz 11000 MHz ≤ f ≤ 1068 MHz 11000 MHz ≤ f ≤ 10849 MHz 110000 MHz ≤ f ≤ 10849 MHz 1100000 MHz ≤ f ≤ 1068 MHz 110000 MHz ≤ f ≤ 1068 MHz		OO GBIII	100 1012							
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Test requirements for DC_25A_n41A Configuration    S81 MHz ≤ f ≤ 840 MHz		-30 dBm	1 MHz							
MHz										
Test requirements for DC_25A_n41A Configuration  581 MHz ≤ f ≤ 840 MHz  1010 MHz ≤ f ≤ 1334 MHz  3077 MHz ≤ f ≤ 3530 MHz  4346 MHz ≤ f ≤ 4605 MHz  6196 MHz ≤ f ≤ 6520 MHz  6842 MHz ≤ f ≤ 6520 MHz  6842 MHz ≤ f ≤ 7295 MHz  Test requirements for DC_26A_n41A Configuration  798 MHz ≤ f < 1000 MHz  1000 MHz ≤ f ≤ 1062 MHz  1000 MHz ≤ f ≤ 1062 MHz  3310 MHz ≤ f ≤ 1339 MHz  4124 MHz ≤ f ≤ 4566 MHz  5806 MHz  Test requirements for DC_26A_n77A Configuration  1602 MHz ≤ f ≤ 3386 MHz  4114 MHz ≤ f ≤ 5898 MHz  Test requirements for DC_26A_n78A Configuration  1602 MHz ≤ f ≤ 2172 MHz  2451 MHz ≤ f ≤ 2986 MHz  4114 MHz ≤ f ≤ 2986 MHz  4114 MHz ≤ f ≤ 6786 MHz  4114 MHz ≤ f ≤ 6786 MHz  4114 MHz ≤ f ≤ 6786 MHz  7751 MHz ≤ f ≤ 6786 MHz  4114 MHz ≤ f ≤ 5498 MHz  3551 MHz ≤ f ≤ 6786 MHz  7414 MHz ≤ f ≤ 6786 MHz  7414 MHz ≤ f ≤ 6786 MHz  7414 MHz ≤ f ≤ 6786 MHz  7551 MHz ≤ f ≤ 6786 MHz  7414 MHz ≤ f ≤ 6786 MHz  7551 MHz ≤ f ≤ 6786 MHz  7414 MHz ≤ f ≤ 6786 MHz  7551 MHz ≤ f ≤ 6786 MHz										
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4928 MHz ≤ f ≤ 5498 MHz  5751 MHz ≤ f ≤ 6786 MHz  7414 MHz ≤ f ≤ 8449 MHz  Test requirements for DC_26A_n79A Configuration  2702 MHz ≤ f ≤ 3372 MHz  3551 MHz ≤ f ≤ 4186 MHz  5214 MHz ≤ f ≤ 5849 MHz 6028 MHz ≤ f ≤ 6698 MHz 7951 MHz ≤ f ≤ 9186 MHz 9614 MHz ≤ f ≤ 10849 MHz  Test requirements for DC_28A_n3A Configuration  214 MHz ≤ f ≤ 379 MHz  -36 dBm  1 MHz		<u>.</u>								
5751 MHz ≤ f ≤ 6786 MHz 7414 MHz ≤ f ≤ 8449 MHz  Test requirements for DC_26A_n79A Configuration  2702 MHz ≤ f ≤ 3372 MHz 3551 MHz ≤ f ≤ 4186 MHz 5214 MHz ≤ f ≤ 5849 MHz 6028 MHz ≤ f ≤ 6698 MHz 7951 MHz ≤ f ≤ 9186 MHz 9614 MHz ≤ f ≤ 10849 MHz  Test requirements for DC_28A_n3A Configuration  214 MHz ≤ f ≤ 379 MHz -36 dBm 100 kHz		-30 dBm	1 MHz							
7414 MHz ≤ f ≤ 8449 MHz         Test requirements for DC_26A_n79A Configuration         2702 MHz ≤ f ≤ 3372 MHz         3551 MHz ≤ f ≤ 4186 MHz         5214 MHz ≤ f ≤ 5849 MHz         6028 MHz ≤ f ≤ 6698 MHz         7951 MHz ≤ f ≤ 9186 MHz         9614 MHz ≤ f ≤ 10849 MHz         Test requirements for DC_28A_n3A Configuration         214 MHz ≤ f ≤ 379 MHz         -36 dBm         100 kHz										
Test requirements for DC_26A_n79A Configuration         2702 MHz ≤ f ≤ 3372 MHz         3551 MHz ≤ f ≤ 4186 MHz         5214 MHz ≤ f ≤ 5849 MHz         6028 MHz ≤ f ≤ 6698 MHz         7951 MHz ≤ f ≤ 9186 MHz         9614 MHz ≤ f ≤ 10849 MHz         Test requirements for DC_28A_n3A Configuration         214 MHz ≤ f ≤ 379 MHz         -36 dBm       100 kHz										
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7951 MHz ≤ f ≤ 9186 MHz 9614 MHz ≤ f ≤ 10849 MHz  Test requirements for DC_28A_n3A Configuration  214 MHz ≤ f ≤ 379 MHz -36 dBm 100 kHz		-30 dBm	1 MHz							
9614 MHz ≤ f ≤ 10849 MHz  Test requirements for DC_28A_n3A Configuration  214 MHz ≤ f ≤ 379 MHz  -36 dRm 100 kHz										
Test requirements for DC_28A_n3A Configuration  214 MHz ≤ f ≤ 379 MHz  -36 dBm  100 kHz										
214 MHz ≤ f ≤ 379 MHz -36 dRm 100 kHz		s for DC 28A	n3A Configuration	1						
I =36 dBm   100 kHz										
		-36 dBm	100 kHz							

1000 MHz ≤ f ≤ 1082 MHz								
2413 MHz ≤ f ≤ 2533 MHz								
2672 MHz ≤ f ≤ 2867 MHz	-30 dBm	1 MHz						
$3116 \text{ MHz} \le f \le 3281 \text{ MHz}$	oo abiii	1 1711 12						
4123 MHz ≤ f ≤ 4318 MHz								
Test requirements for DC_28A_n5A Configuration								
76 MHz ≤ f ≤ 146 MHz								
557 MHz ≤ f ≤ 672 MHz	-36 dBm	100 kHz						
900 MHz ≤ f ≤ 995 MHz								
1527 MHz ≤ f ≤ 1597 MHz								
2230 MHz ≤ f ≤ 2345 MHz	-30 dBm	1 MHz						
	-30 dbiii	1 1011 12						
2351 MHz ≤ f ≤ 2446 MHz								
	s for DC_28A_	n7A Configuration						
1004 MHz ≤ f ≤ 1164 MHz								
1752 MHz ≤ f ≤ 1867 MHz								
3203 MHz ≤ f ≤ 3318 MHz	00 ID	4 841 1						
3906 MHz ≤ f ≤ 4066 MHz	-30 dBm	1 MHz						
4252 MHz ≤ f ≤ 4437 MHz								
5703 MHz ≤ f ≤ 5888 MHz								
	- for DC 20A :	77A Configuration						
	S 101 DC_28A_1	177A Configuration	T					
1804 MHz ≤ f ≤ 3497 MHz								
4003 MHz ≤ f ≤ 5696 MHz	-30 dBm	1 MHz						
5852 MHz ≤ f ≤ 9148 MHz								
	s for DC 28A r	78A Configuration						
1804 MHz ≤ f ≤ 2394 MHz								
2552 MHz ≤ f ≤ 3097 MHz								
4003 MHz ≤ f ≤ 4548 MHz								
	-30 dBm	1 MHz						
4706 MHz ≤ f ≤ 5296 MHz								
5852 MHz ≤ f ≤ 6897 MHz								
7303 MHz ≤ f ≤ 8348 MHz								
Test requirements	s for DC 28A r	179A Configuration						
2904 MHz ≤ f ≤ 3594 MHz		<b>J</b>						
3652 MHz ≤ f ≤ 4297 MHz								
$5103 \text{ MHz} \le f \le 5748 \text{ MHz}$								
	-30 dBm	1 MHz						
5806 MHz ≤ f ≤ 6496 MHz								
8052 MHz ≤ f ≤ 9297 MHz								
9503 MHz ≤ f ≤ 10748 MHz								
Test requirement	s for DC_30A_	n5A Configuration						
607 MHz ≤ f ≤ 667 MHz	-36 dBm	100 kHz						
1456 MHz ≤ f ≤ 1491 MHz	00 02							
$3129 \text{ MHz} \le f \le 3164 \text{ MHz}$								
	20 dD	4 MII-						
3761 MHz ≤ f ≤ 3806 MHz	-30 dBm	1 MHz						
3953 MHz ≤ f ≤ 4013 MHz								
5434 MHz ≤ f ≤ 5479 MHz								
Test requirements	s for DC_39A_r	n41A Configuration						
576 MHz ≤ f < 810 MHz	-36 dBm	100 kHz						
1070MHz ≤ f ≤ 1344 MHz	-30 dBm	1 MHz	2					
3072MHz ≤ f ≤ 3500 MHz	OU GENT	1 1911 14						
4376MHz ≤ f ≤ 4610 MHz								
	-25 dBm	1 MHz	1					
6256MHz ≤ f ≤ 6530 MHz		_						
6872MHz ≤ f ≤ 7300 MHz								
Test requirements	s for DC_39A_r	179A Configuration						
560 MHz ≤ f ≤ 1000 MHz	-36 dBm	100 kHz						
1000 MHz ≤ f ≤ 1240 MHz								
2480 MHz ≤ f ≤ 3120 MHz								
6280 MHz ≤ f ≤ 8120 MHz	-30 dBm	1 MHz						
	-30 ubili	I IVI□Z						
8160 MHz ≤ f ≤ 8840 MHz								
10680 MHz ≤ f ≤ 11920 MHz								
		n1A Configuration						
320 MHz ≤ f ≤ 480 MHz	-36 dBm	100 kHz						
1440 MHz ≤ f ≤ 1660 MHz								
2620 MHz ≤ f ≤ 2880 MHz								
$4220 \text{ MHz} \le f \le 4380 \text{ MHz}$	-30 dBm	1 MHz						
	-30 adili	i iVI□Z						
6140 MHz ≤ f ≤ 6360 MHz								
6520 MHz ≤ f ≤ 6780 MHz								
	s for DC_40A_r	n41A Configuration						
96 MHz ≤ f < 390 MHz	-36 dBm	100 kHz						

1910 MHz ≤ f ≤ 2304 MHz	-30 dBm	1 MHz	2					
2592 MHz ≤ f ≤ 3080 MHz								
4796 MHz ≤ f ≤ 5090 MHz	-25 dBm	1 MHz	1					
7096 MHz ≤ f ≤ 7780 MHz								
Test requirement	s for DC_40A_i	n78A Configuration						
800 MHz ≤ f ≤ 1000 MHz	-36 dBm	100 kHz						
1000 MHz ≤ f ≤ 1500 MHz								
4200 MHz ≤ f ≤ 5300 MHz								
5600 MHz ≤ f ≤ 6200 MHz	-30 dBm	1 MHz						
7900 MHz ≤ f ≤ 8600 MHz	00 05							
8900 MHz ≤ f ≤ 10000 MHz								
	s for DC 40A I	n79A Configuration						
2000 MHz ≤ f ≤ 2700 MHz								
6400 MHz ≤ f ≤ 7700 MHz								
$9000 \text{ MHz} \le f \le 9800 \text{ MHz}$	-30 dBm	1 MHz						
11100 MHz ≤ f ≤ 12400 MHz								
	s for DC 41A i	n77A Configuration						
610 MHz ≤ f ≤ 1000 MHz		100 kHz						
1000 MHz ≤ f ≤ 2080 MHz	-36 dBm	100 KHZ						
	00 dD	4 MII-						
3910 MHz ≤ f ≤ 6890 MHz	-30 dBm	1 MHz						
8292 MHz ≤ f ≤ 11090 MHz	o for DC 44.4	70 A Configuration						
		n78A Configuration						
610 MHz ≤ f ≤ 1000 MHz	-36 dBm	100 kHz						
1000 MHz ≤ f ≤ 2080 MHz								
3910 MHz ≤ f ≤ 5104 MHz	-30 dBm	1 MHz						
5796 MHz ≤ f ≤ 6490 MHz	00 0.2							
8292 MHz ≤ f ≤ 10290 MHz								
		n79A Configuration						
8 MHz ≤ f ≤ 30 MHz	-36 dBm	10 kHz						
30 MHz ≤ f ≤ 980 MHz	-36 dBm	100 kHz						
1710 MHz ≤ f ≤ 2504 MHz								
6110 MHz ≤ f ≤ 7690 MHz	-30 dBm	1 MHz						
9392 MHz ≤ f ≤ 10380 MHz	-30 dbiii	1 1011 12						
9392 MHZ STS 10380 MHZ								
11296 MHz ≤ f ≤ 12690 MHz								
Test requirement	s for DC_42A_ı	n77A Configuration						
	s for DC_42A_ı -36 dBm	n77A Configuration						
Test requirement								
Test requirement 300 MHz ≤ f ≤ 800 MHz								
Test requirement 300 MHz ≤ f ≤ 800 MHz 2600 MHz ≤ f ≤ 5000 MHz 6700 MHz ≤ f ≤ 7800 MHz 10000 MHz ≤ f ≤ 12000 MHz	-36 dBm -30 dBm	100 kHz 1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement	-36 dBm -30 dBm	100 kHz						
Test requirement 300 MHz ≤ f ≤ 800 MHz 2600 MHz ≤ f ≤ 5000 MHz 6700 MHz ≤ f ≤ 7800 MHz 10000 MHz ≤ f ≤ 12000 MHz	-36 dBm -30 dBm	100 kHz 1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement	-36 dBm -30 dBm	100 kHz 1 MHz						
Test requirement 300 MHz ≤ f ≤ 800 MHz 2600 MHz ≤ f ≤ 5000 MHz 6700 MHz ≤ f ≤ 7800 MHz 10000 MHz ≤ f ≤ 12000 MHz  Test requirement 1852 MHz ≤ f ≤ 2052 MHz	-36 dBm -30 dBm	100 kHz 1 MHz n5A Configuration						
Test requirement 300 MHz ≤ f ≤ 800 MHz 2600 MHz ≤ f ≤ 5000 MHz 6700 MHz ≤ f ≤ 7800 MHz 10000 MHz ≤ f ≤ 12000 MHz  Test requirement 1852 MHz ≤ f ≤ 2052 MHz 2701 MHz ≤ f ≤ 2876 MHz	-36 dBm -30 dBm	100 kHz 1 MHz						
Test requirement 300 MHz ≤ f ≤ 800 MHz 2600 MHz ≤ f ≤ 5000 MHz 6700 MHz ≤ f ≤ 7800 MHz 10000 MHz ≤ f ≤ 12000 MHz  Test requirement 1852 MHz ≤ f ≤ 2052 MHz 2701 MHz ≤ f ≤ 2876 MHz 4374 MHz ≤ f ≤ 4549 MHz	-36 dBm -30 dBm	100 kHz 1 MHz n5A Configuration						
Test requirement  300 MHz $\leq$ f $\leq$ 800 MHz  2600 MHz $\leq$ f $\leq$ 5000 MHz  6700 MHz $\leq$ f $\leq$ 7800 MHz  10000 MHz $\leq$ f $\leq$ 12000 MHz  Test requirement  1852 MHz $\leq$ f $\leq$ 2052 MHz  2701 MHz $\leq$ f $\leq$ 2876 MHz  4374 MHz $\leq$ f $\leq$ 4549 MHz  5198 MHz $\leq$ f $\leq$ 5398 MHz	-36 dBm -30 dBm	100 kHz 1 MHz n5A Configuration						
Test requirement  300 MHz $\leq$ f $\leq$ 800 MHz  2600 MHz $\leq$ f $\leq$ 5000 MHz  6700 MHz $\leq$ f $\leq$ 7800 MHz  10000 MHz $\leq$ f $\leq$ 12000 MHz  Test requirement  1852 MHz $\leq$ f $\leq$ 2052 MHz  2701 MHz $\leq$ f $\leq$ 2876 MHz  4374 MHz $\leq$ f $\leq$ 4549 MHz  5198 MHz $\leq$ f $\leq$ 5398 MHz  6251 MHz $\leq$ f $\leq$ 6576 MHz  7924 MHz $\leq$ f $\leq$ 8249 MHz	-36 dBm -30 dBm ts for DC_48A30 dBm	100 kHz 1 MHz n5A Configuration						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 8249 MHz  Test requirement	-36 dBm -30 dBm ts for DC_48A30 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz						
Test requirement  300 MHz $\leq$ f $\leq$ 800 MHz  2600 MHz $\leq$ f $\leq$ 5000 MHz  6700 MHz $\leq$ f $\leq$ 7800 MHz  10000 MHz $\leq$ f $\leq$ 12000 MHz  Test requirement  1852 MHz $\leq$ f $\leq$ 2052 MHz  2701 MHz $\leq$ f $\leq$ 2876 MHz  4374 MHz $\leq$ f $\leq$ 4549 MHz  5198 MHz $\leq$ f $\leq$ 5398 MHz  6251 MHz $\leq$ f $\leq$ 6576 MHz  7924 MHz $\leq$ f $\leq$ 8249 MHz	-36 dBm -30 dBm ts for DC_48A30 dBm s for DC_48A_1 -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz	-36 dBm -30 dBm ts for DC_48A30 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  s for DC_48A_1  -36 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz	-36 dBm -30 dBm ts for DC_48A30 dBm s for DC_48A_1 -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 5690 MHz  6970 MHz ≤ f ≤ 7260 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  s for DC_48A_1  -36 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 7260 MHz  6970 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  s for DC_48A_  -36 dBm  -36 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  Test requirement	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -36 dBm -36 dBm -36 dBm -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration 10 KHz 100 KHz 1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  -36 dBm  -36 dBm  -30 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz  1 MHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -36 dBm -36 dBm -36 dBm -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration 10 KHz 100 KHz 1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  -36 dBm  -36 dBm  -30 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz  1 MHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz  1 MHz  1 MHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  810 MHz ≤ f ≤ 9180 MHz  2534 MHz ≤ f ≤ 956 MHz  2534 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 3478 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  -36 dBm  -36 dBm  -30 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz  1 MHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 5690 MHz  6970 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  810 MHz ≤ f ≤ 9180 MHz  2534 MHz ≤ f ≤ 956 MHz  3558 MHz ≤ f ≤ 2736 MHz  3558 MHz ≤ f ≤ 2736 MHz  34244 MHz ≤ f ≤ 4409 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration 10 KHz 100 KHz  1 MHz  1 MHz  1 MHz  1 MHz  1 MHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 5690 MHz  6970 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 3132 MHz  861 MHz ≤ f ≤ 956 MHz  2534 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 3478 MHz  4244 MHz ≤ f ≤ 4409 MHz  Test requirement	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  s for DC_48A_  -36 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 5690 MHz  6970 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  230 MHz ≤ f ≤ 3132 MHz  861 MHz ≤ f ≤ 956 MHz  2534 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 3478 MHz  4244 MHz ≤ f ≤ 4409 MHz  Test requirement  716 MHz ≤ f < 1000 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration 10 KHz 100 KHz  1 MHz  1 MHz  1 MHz  1 MHz  1 MHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 5690 MHz  6970 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 3132 MHz  861 MHz ≤ f ≤ 956 MHz  2534 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 3478 MHz  4244 MHz ≤ f ≤ 4409 MHz  Test requirement  716 MHz ≤ f < 1000 MHz  1000 MHz ≤ f ≤ 1064 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  s for DC_48A_  -36 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz						
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 5690 MHz  6970 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 3132 MHz  861 MHz ≤ f ≤ 956 MHz  2534 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 3478 MHz  4244 MHz ≤ f ≤ 1000 MHz  Test requirement  716 MHz ≤ f < 1000 MHz  1000 MHz ≤ f ≤ 1064 MHz  3212 MHz ≤ f ≤ 3670 MHz	-36 dBm -30 dBm  s for DC_48A_  -30 dBm  -30 dBm  s for DC_48A_  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz  1 MHz	2					
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 5690 MHz  8810 MHz ≤ f ≤ 760 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 30 MHz  2534 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 3478 MHz  4244 MHz ≤ f < 1000 MHz  Test requirement  716 MHz ≤ f < 1000 MHz  1000 MHz ≤ f ≤ 1064 MHz  3212 MHz ≤ f ≤ 4470 MHz  4206 MHz ≤ f ≤ 4470 MHz	-36 dBm -30 dBm  ts for DC_48A_  -30 dBm  -30 dBm  s for DC_48A_  -36 dBm  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz	2					
Test requirement  300 MHz ≤ f ≤ 800 MHz  2600 MHz ≤ f ≤ 5000 MHz  6700 MHz ≤ f ≤ 7800 MHz  10000 MHz ≤ f ≤ 12000 MHz  Test requirement  1852 MHz ≤ f ≤ 2052 MHz  2701 MHz ≤ f ≤ 2876 MHz  4374 MHz ≤ f ≤ 4549 MHz  5198 MHz ≤ f ≤ 5398 MHz  6251 MHz ≤ f ≤ 6576 MHz  7924 MHz ≤ f ≤ 8249 MHz  Test requirement  10 MHz ≤ f < 30 MHz  30 MHz ≤ f ≤ 280 MHz  1770 MHz ≤ f ≤ 1990 MHz  5260 MHz ≤ f ≤ 5690 MHz  6970 MHz ≤ f ≤ 7260 MHz  8810 MHz ≤ f ≤ 9180 MHz  Test requirement  12 MHz ≤ f ≤ 30 MHz  30 MHz ≤ f ≤ 3132 MHz  861 MHz ≤ f ≤ 956 MHz  2534 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 2736 MHz  3358 MHz ≤ f ≤ 3478 MHz  4244 MHz ≤ f ≤ 1000 MHz  Test requirement  716 MHz ≤ f < 1000 MHz  1000 MHz ≤ f ≤ 1064 MHz  3212 MHz ≤ f ≤ 3670 MHz	-36 dBm -30 dBm  s for DC_48A_  -30 dBm  -30 dBm  s for DC_48A_  -36 dBm	100 kHz  1 MHz  n5A Configuration  1 MHz  n66A Configuration  10 KHz  100 KHz  1 MHz  1 MHz	2					

	-25 dBm	1 MHz	1				
Test requirements for DC_66A_n71A Configuration							
314 MHz ≤ f ≤ 454 MHz -36 dBm 100 kHz							
1102 MHz ≤ f ≤ 1117 MHz							
2373 MHz ≤ f ≤ 2478 MHz							
2722 MHz ≤ f ≤ 2897 MHz	-30 dBm	1 MHz					
3036 MHz ≤ f ≤ 3176 MHz							
4083 MHz ≤ f ≤ 4258 MHz							
Test requiremen	ts for DC_66A_r	177A Configuration					
260MHz ≤ f ≤ 780 MHz	-36 dBm	100 kHz					
1520 MHz ≤ f ≤ 2490MHz							
5010 MHz ≤ f ≤ 6690 MHz	-30 dBm	1 MHz					
6720 MHz ≤ f ≤ 7760 MHz	-30 dBiii	1 1011 12					
8310 MHz ≤ f ≤ 10180 MHz							
Test requiremen	ts for DC_66A_r	178A Configuration					
260 MHz ≤ f ≤ 380 MHz	-36 dBm	100 kHz					
1520 MHz ≤ f ≤ 2090 MHz							
4820 MHz ≤ f ≤ 5890 MHz	-30 dBm	1 MHz					
6720 MHz ≤ f ≤ 7360 MHz	-30 dbiii	1 1011 12					
8310 MHz ≤ f ≤ 9380 MHz							
NOTE 1: Applies for Band n41, CA configurations including Band n41, and EN-							
		41 specified in cla	use 5.2B of				
TS 36.101 [5] when NS 04 is signalled.							

TS 36.101 [5] when NS\_04 is signalled.

NOTE 2: Does not apply for Band n41, CA configurations including Band n41, and EN-DC configurations that include n41 specified in subclause 5.2B of TS 38.101-3 [4] when NS\_04 is signalled.

#### 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band within FR1

Editor's note: The default and additional test configuration is analysed based on the assumption that only intermodulation products need to be tested. The band combinations without TP analysis in TR 38.905 are incomplete.

#### 6.5B.3.3.2.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to other channels or other systems in terms of transmitter spurious emissions for band UE co-existence for inter-band EN-DC.

#### 6.5B.3.3.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward supporting inter-band EN-DC.

#### 6.5B.3.3.2.3 Minimum conformance requirements

This clause specifies the requirements for the specified EN-DC, for coexistence with protected bands. The requirements in Table 6.5B.3.3.2.3-1 and Table 6.5B.3.3.2.3-2 apply on each component carrier with all component carriers are active.

NOTE: For inter-band EN\_DC with the uplink assigned to one LTE band and one NR band, the requirements in Table 6.5B.3.3.2.3-1 and Table 6.5B.3.3.2.3-2 could be verified by measuring spurious emissions at the specific frequencies where second and third order intermodulation products generated by the two transmitted carriers can occur.

Table 6.5B.3.3.2.3-1: Spurious emission band UE co-existence limits Rel-15

	Spurious emission							
EN-DC Configuration	Protected band	Frequency range (MHz)			Maximum Level (dBm)	MBW (MHz)	NOTE	
DC_1_n28	E-UTRA Band 5, 7, 8, 18, 19, 20, 26, 27, 31, 38, 40, 41, 72, 73 NR band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1		
	E-UTRA Band 1, 22, 32, 42, 43, 50, 51, 52, 65, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2	
	NR band n77, n78 E-UTRA band n3, n34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5	
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11	
	E-UTRA Band 1, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10	
	Frequency range	470	-	694	-42	8	5, 17	
	Frequency range	470 758	-	710 773	-26.2 -32	6	<u>14</u> 5	
	Frequency range	773	-	803	-52 -50	1	<u> </u>	
	Frequency range Frequency range	662	-	694	-26.2	6	5	
	Frequency range	1880	-	1895	-40	1	5, 16	
	Frequency range	1895	-	1915	-15.5	5	5, 7, 16	
	Frequency range	1915	-	1920	+1.6	5	5, 7, 16	
	1 requestoy range	1010		1020	11.0	Ŭ	0, 7, 10	
DC_1_n77	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 40, 41, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1		
	Frequency range	1880	-	1895	-40	1	5, 8	
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8	
	Frequency range	1915	-	1920	+1.6	5	5, 7, 8	
DC_1_n78	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 40, 41, 65, 74	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1		
	Frequency range	1880	-	1895	-40	1	5, 8	
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8	
	Frequency range	1915	-	1920	+1.6	5	5, 7, 8	
DC_1_n79	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 21, 26, 28, 34, 40, 41, 42, 65, 74	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1		
	Frequency range	1880	-	1895	-40	1	5, 8	
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8	
	Frequency range	1915	-	1920	+1.6	5	5, 7, 8	
DC_2_n5	E-UTRA Bands 4, 5, 12, 13, 14, 17, 24, 26, 28, 29, 30, 42, 48, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1		
	E-UTRA Bands 2, 25	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2	
	E-UTRA Band 41, 43, 53	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	2	
DC_2_n66 E	E-UTRA Bands 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85	$F_{DL_{low}}$	-	F <sub>DL_high</sub>	-50	1		
	E-UTRA Bands 2, 25	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5	
	E-UTRA Bands 42, 48	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2	
DC_2_n71	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 29, 30, 48, 66	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1		
	E-UTRA Band 2, 25, 41, 70	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2	
	E-UTRA Band n71	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5	
DC_2_n78	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85	$F_{DL_{low}}$	-	F <sub>DL_high</sub>	-50	1		
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2	
DC_3_n7	E-UTRA Band 1, 5, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 40, 43, 44, 50, 51, 65, 67, 72, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1		
	E-UTRA band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5	
	E-UTRA band 22, 42	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2	
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7	
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7	

1	F	0505	1 1	0000	40		
DO 0 =0	Frequency range	2595	-	2620	-40	1	5, 6
DC_3_n8	E-UTRA Band 1, 11, 20, 21, 28,	F <sub>DL_low</sub>	-	FDL_high	-50	1	
	31, 32, 33, 34, 38, 39, 40, 45,						
	50, 51, 65, 67,68, 69, 72, 73, 74, 75, 76						
	E-UTRA band 3, 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 5
	E-UTRA band 7, 22, 41, 42, 43,	FDL low		FDL high	-50	1	2, 3
	52	I DL_IOW		I DL_nigh	-30	'	2
	NR Band n77, n78, n79						
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n28	E-UTRA Band 1, 42, 43, 50, 51,						
	65, 74, 75, 76	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	2
	NR band n77, n78, n79						
	E-UTRA band 1	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	9, 11
	E-UTRA band 3	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	5
	E-UTRA Band 5, 7, 8, 18, 19, 20,	F <sub>DL_low</sub>	_	$F_{DL\_high}$	-50	1	
	26, 27, 31, 34, 38, 40, 41, 72	I DL_IOW					
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	1884.5	-	1915.7	-41	0.3	13
	Frequency range	470	-	710	-26.2	6	14
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-50	1	
DO 0 77	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9
DC_3_n77	E-UTRA Band 1, 3, 5, 7, 8, 11,	F		_	<i>E</i> 0	1	
	18, 19, 20, 21, 26, 28, 34, 39,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	40, 41, 65, 74	1884.5	-	1915.7	-41	0.3	3
DC_3_n78	Frequency range E-UTRA Band 1, 3, 5, 7, 8, 11,	1004.3		1915.7	-41	0.3	ა
DC_3_1176	18, 19, 20, 21, 26, 28, 34, 39,	$F_{DL_{low}}$	_	F <sub>DL_high</sub>	-50	1	
UP-TDM_n78	40, 41, 65, 74	I DL_IOW		I DL_nign	-30	'	
01 1BW_1170	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n79	E-UTRA Band 1, 3, 5, 8, 11, 18,						J
2 0_0 0	19, 21, 28, 34, 39, 40, 41, 65, 74	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_5_n66	E-UTRA Band 1, 2, 3, 4, 5, 6, 7,						
	8, 12, 13, 14, 17, 24, 25, 28, 29,	FDL low	_	FDL high	-50	1	
	30, 34, 38, 40, 43, 45, 50, 51,	I DL_low		I DL_nign	-30	'	
	65, 66, 70, 71, 85						
	E-UTRA Band 26	859	-	869	-27	1	
	E-UTRA Band 41, 42, 48, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_5_n78	E-UTRA Band 1, 2, 3, 4, 5, 7, 8,	_		_	=0		
	12, 13, 14, 17, 24, 25, 28, 29,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	30, 31, 34, 38, 40, 45, 65, 66, 70	050		960	27	1	
	E-UTRA Band 26 E-UTRA Band 41	859	-	869	-27 50	1	2.7
DC_7_n28	E-UTRA Band 41 E-UTRA Band 2, 3, 5, 7, 8, 20,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2,7
DO_1_1120	26, 27, 31, 34, 40, 72	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 1, 4, 42, 43, 50,		+			-	
	65, 66, 74, 75, 76	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	2
	NR band n78	. DL_10W		- 2L_11911			_
	E-UTRA band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-50	1	
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n78	E-UTRA Band 1, 2, 3, 4, 5, 7, 8,						
	11, 18, 19, 20, 21, 26, 27, 28,	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	
	31, 32, 33, 34, 40, 50, 51, 65,	· DL_IUW		· DL_IIIGII	30		
	66, 67, 68, 72, 74, 75, 76	0570	1	0575	4.6	_	<i>-</i>
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
1	Frequency range	2595	-	2620	-40	1	5, 6

DC_8_n77	E-UTRA Band 1, 20, 28, 31, 32,						
	33, 34, 38, 39, 40, 44, 45, 50,	_		_	50		
	51, 65, 67, 68, 69, 72, 73, 74,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	75, 76						
	E-UTRA band 3, 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
			+			1	
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	12
	Frequency range	860	-	890	-40	1	5, 12
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 12
DC_8_n78	E-UTRA Band 1, 20, 28, 34, 39,	_		_	50		
	40, 65, 74	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 3, 7,41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 8	F <sub>DL_low</sub>	l _	F <sub>DL_high</sub>	-50	1	5
			+-			1	12
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	· -	
	Frequency range	860	-	890	-40	1	5, 12
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 12
DC_11_n77	E-UTRA Band 1, 3, 18, 19, 28,	_		_	50	4	
	34, 40, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
			+				,
	Frequency range	2545	-	2575	-50	1	
<b></b>	Frequency range	2595	-	2645	-50	1	
DC_11_n78	E-UTRA Band 1, 3, 18, 19, 28,	F <sub>DL low</sub>	_	F <sub>DL_high</sub>	-50	1	
	34, 40, 65	I DL_IOW	<u></u>	i DL_nign	-50		
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	•
		2595	+	2645	-50	1	
DO 11 70	Frequency range	2595	-	2045	-50	ı	
DC_11_n79	E-UTRA Band 1, 3, 18, 19, 28,	FDL low	_	F <sub>DL_high</sub>	-50	1	
	34, 40, 42, 65	. 55_1011		· DL_mgn		·	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_12_n66	E-UTRA Band 2, 5, 13, 14, 17,	2000		2040	- 00	- '	
DC_12_1100		F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	25, 26, 27, 30, 41, 71, 74						
	E-UTRA Bands 4, 48, 50, 51, 66,	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	2
	70	· DL_IOW				·	
	E-UTRA Band 12, 85	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
DC_19_n77	E-UTRA Band 1, 3, 11, 21, 28,				50	4	
	34, 40, 65, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
		945	-	960	-50	1	
	Frequency range		_				2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n78	E-UTRA Band 1, 3, 11, 21, 28,	E-·		E- · ·	E0.	1	
	34, 40, 65, 74	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	' '	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
			+				J
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n79	E-UTRA Band 1, 3, 11, 21, 28,	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	
	34, 40, 42, 65, 74	i DL_IOW			-00		
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
		2595		2645	-50	1	
DC 0000	Frequency range		+-				
DC_20_n28	E-UTRA Band 3, 7, 8, 31, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 1, 22, 32, 38, 42,	_		_			
	43, 65, 75, 76	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	NR Band n78						
DC_20_n78	E-UTRA Band 1, 3, 7, 8, 31, 32,	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	$F_{DL\_low}$
1_ 1_11	33, 34, 40, 50, 51, 65, 67, 68,	22_10#		>=«g			225#
	72, 74, 75, 76						
	E-UTRA Band 20	F <sub>DL_low</sub>	+-	F <sub>DL_high</sub>	-50	1	5
			+-				
1	E-UTRA Band 38, 69	F <sub>DL_low</sub>	1 -	$F_{DL\_high}$	-50	1	2

		1					
DC_21_n77	E-UTRA Band 1, 3, 18, 19, 21, 28, 34, 40, 42, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	İ
	Frequency range	945	-	960	-50	1	<u> </u>
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_21_n78	E-UTRA Band 1, 3, 18, 19, 21,	2393	H	2043	-30	ı	
DC_21_1176	28, 34, 40, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	1
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_21_n79	E-UTRA Band 1, 3, 18, 19, 21,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	28, 34, 42, 65	045		060	FO	4	
	Frequency range	945	-	960	-50	1	0
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_25_n41	E-UTRA band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 42,	$F_{DL\_low}$		$F_{DL\_high}$	-50	1	l
	45, 48, 66, 70,71	I DL_IOW		• DL_nigh	30		l
	E-UTRA/NR Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_26_n41	E-UTRA/NR Band 1, 2, 3, 4, 5,						<del></del>
	11, 12, 13, 14, 17, 18, 19, 21,						İ
	24, 25, 26, 29, 30, 31, 34, 39,	FDL low	-	$F_{DL\_high}$	-50	1	İ
	42, 43, 48, 50, 51, 65, 66, 70,						Ì
	71, 74						İ
	Frequency range	1884.5		1915.7	-41	0.3	3
	Frequency range	703	-	799	-50	1	
	Frequency range	799	-	803	-40	1	5
	Frequency range	945	-	960	-50	1	
DC_26_n77	E-UTRA Band 1, 3, 5, 11, 18, 19,	3-13		300	-30		
DC_20_1177	21, 26, 34, 39, 40, 65, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	l
	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	703	-	799	-50	1	
	Frequency range	799	-	803	-40	1	5
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	2
	Frequency range	2595	-	2645	-50	1	
DC 26 p70		2090	-	2043	-30	I	
DC_26_n78	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 65, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	ı
	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		2
	Frequency range	703	-	799	-50	1	
	Frequency range	799	-	803	-40	1	5
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	2
							<del></del>
	Frequency range	2595	-	2645	-50	1	
DC 26 n79	Frequency range E-UTRA Band 1, 3, 5, 11, 18, 19,	2595	-	2645	-50		
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74	2595 F <sub>DL_low</sub>	-	2645 F <sub>DL_high</sub>	-50 -50	1	
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50 -50		2
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74	F <sub>DL_low</sub> F <sub>DL_low</sub> 703	- - -	FDL_high FDL_high 799	-50 -50 -50	1 1 1	
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74 E-UTRA Band 41	F <sub>DL_low</sub> F <sub>DL_low</sub> 703 799	-	F <sub>DL_high</sub> F <sub>DL_high</sub> 799 803	-50 -50 -50 -40	1 1 1 1	2
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74 E-UTRA Band 41 Frequency range	F <sub>DL_low</sub> F <sub>DL_low</sub> 703 799 945	-	F <sub>DL_high</sub> F <sub>DL_high</sub> 799 803 960	-50 -50 -50 -40 -50	1 1 1	5
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range	F <sub>DL_low</sub> F <sub>DL_low</sub> 703 799	- - -	F <sub>DL_high</sub> F <sub>DL_high</sub> 799 803	-50 -50 -50 -40	1 1 1 1	
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range	F <sub>DL_low</sub> F <sub>DL_low</sub> 703 799 945	- - - -	F <sub>DL_high</sub> F <sub>DL_high</sub> 799 803 960	-50 -50 -50 -40 -50	1 1 1 1	5
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range  Frequency range	FDL_low FDL_low 703 799 945 1884.5	- - - -	F <sub>DL_high</sub> F <sub>DL_high</sub> 799 803 960 1915.7	-50 -50 -50 -40 -50 -41	1 1 1 1 1 0.3	5
DC_26_n79	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 3, 5, 7, 8, 18, 19,	FDL_low 703 799 945 1884.5 2545 2595	- - - -	F <sub>DL_high</sub> F <sub>DL_high</sub> 799 803 960 1915.7 2575 2645	-50 -50 -50 -40 -50 -41 -50 -50	1 1 1 1 0.3 1	5
	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41	FDL_low 703 799 945 1884.5 2545 2595 FDL_low	- - - -	FDL_high 799 803 960 1915.7 2575 2645 FDL_high	-50 -50 -50 -40 -50 -41 -50 -50	1 1 1 1 0.3 1 1	5 3 2
	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41  E-UTRA Band 1, 65, 74	FDL_low 703 799 945 1884.5 2545 2595 FDL_low FDL_low	- - - -	FDL_high 799 803 960 1915.7 2575 2645 FDL_high	-50 -50 -50 -40 -50 -41 -50 -50 -50 -50	1 1 1 1 0.3 1 1 1	5 3 2
	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41  E-UTRA Band 1, 65, 74  E-UTRA Band 1	FDL_low 703 799 945 1884.5 2545 2595 FDL_low FDL_low FDL_low	- - - -	FDL_high 799 803 960 1915.7 2575 2645 FDL_high FDL_high FDL_high	-50 -50 -50 -40 -50 -41 -50 -50 -50 -50 -50	1 1 1 1 0.3 1 1 1	5 3 2 2 2 9, 11
	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41  E-UTRA Band 1, 65, 74  E-UTRA Band 1  E-UTRA Band 11, 21	FDL_low 703 799 945 1884.5 2545 2595 FDL_low FDL_low FDL_low FDL_low	- - - - - - - - -	FDL_high 799 803 960 1915.7 2575 2645 FDL_high FDL_high FDL_high FDL_high	-50 -50 -50 -40 -50 -41 -50 -50 -50 -50 -50 -50	1 1 1 1 0.3 1 1 1 1	5 3 2
	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41  E-UTRA Band 1, 65, 74  E-UTRA Band 1  E-UTRA Band 11, 21  Frequency range	FDL_low  FDL_low  703  799  945  1884.5  2545  2595  FDL_low  FDL_low  FDL_low  FDL_low  758		FDL_high 799 803 960 1915.7 2575 2645 FDL_high FDL_high FDL_high FDL_high 773	-50 -50 -50 -40 -50 -41 -50 -50 -50 -50 -50 -50 -50 -32	1 1 1 1 0.3 1 1 1 1 1	5 3 2 2 2 9, 11
	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 42, 65, 74  E-UTRA Band 41  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41  E-UTRA Band 1, 65, 74  E-UTRA Band 1  E-UTRA Band 11, 21	FDL_low 703 799 945 1884.5 2545 2595 FDL_low FDL_low FDL_low FDL_low	- - - - - - - - -	FDL_high 799 803 960 1915.7 2575 2645 FDL_high FDL_high FDL_high FDL_high	-50 -50 -50 -40 -50 -41 -50 -50 -50 -50 -50 -50	1 1 1 1 0.3 1 1 1 1	5 3 2 2 2 9, 11

		T					
DC_28_n78	E-UTRA Band 3, 5, 7, 8, 18, 19,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	20, 26, 34, 39, 40, 41 E-UTRA Band 1, 65, 74	F <sub>DL_low</sub>	+-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	+-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	758	-	773	-32	1	3, 10
	Frequency range	773	+-	803	-52	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9
DC_28_n79	E-UTRA Band 3, 5, 8, 18, 19, 34,						0, 0
DO_20_1170	39, 40, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 1, 42, 65, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	9, 10
	Frequency range	758	-	773	-32	1	
	Frequency range	773	-	803	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9
DC_30_n5	E-UTRA Band 2, 4, 5, 7, 12, 13,						
	14, 17, 24, 25, 26, 29, 30, 38,	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	
	48, 66, 70, 71, 85						
	E-UTRA Band 41, 48, 52	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_38_n78		ı	N/	'A			
DC_39_n79	E-UTRA Band 1, 8, 34, 40, 41, 44, 45	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1805	-	1855	-40	1	18
	Frequency range	1855	-	1880	-15.5	5	18
DC_41_n77	E-UTRA Band 1, 3, 5, 8, 11, 18,	1000	+-	1000	-10.0	- 3	10
DC_41_III1	19, 21, 26, 28, 33, 34, 39, 40,	F <sub>DL</sub> low	l _	F <sub>DL_high</sub>	-50	1 1	
	44, 45, 73, 74	I DL_IOW		i DL_nign	30	'	
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_41_n78	E-UTRA Band 1, 3, 5, 8, 11, 18,	1001.0		1010.7		0.0	
DO_11_1110	19, 21, 26, 28, 34, 39, 40, 44,	F <sub>DL</sub> low	_	F <sub>DL_high</sub>	-50	1	
	45, 74	I DL_IOW		· DL_mgn	00		
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_41_n79	E-UTRA Band 1, 3, 5, 8, 11, 18,	700710					
	19, 21, 26, 28, 34, 40, 42, 44,	F <sub>DL</sub> low	-	F <sub>DL_high</sub>	-50	1	
	45, 65, 74	520		22 <u>_</u> g			
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_42_n77		·	N/				
DC_42_n78			N/	Ά			
DC_42_n79			N/				
DC_66_n5	E-UTRA Band 1, 2, 3, 4, 5, 6, 7,						
	8, 12, 13, 14, 17, 24, 25, 26, 28,	E		E	50	1	
	29, 30, 34, 38, 40, 43, 45, 50,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	51, 65, 66, 70, 71, 85						
	E-UTRA Band 41, 42, 48, 52	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_66_n71	E-UTRA Band 4, 5, 13, 14, 17,						
	24, 26, 27, 29, 30, 43,-50, 51,	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	
	66, 74						
	E-UTRA Band 2, 7,22, 25, 41,	F <sub>DL low</sub>	_	$F_{DL\_high}$	-50	1	2
	42, 48, 70						
	E-UTRA Band 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_66_n78	E-UTRA Band 1, 3, 5, 7, 8, 20,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
_ = - =	26, 28, 34, 39, 40, 41, 65			ə		1	

- NOTE 1: F<sub>DL\_low</sub> and F<sub>DL\_high</sub> refer to each frequency band specified in Table 5.5-1 of TS 36.101 [5] or in Table 5.2-1 in TS 38.101-1 [2].
- NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 in TS 36.101 [5] and Table 6.5.3.1-2 in TS 38.101-1 [2] are permitted for each assigned carrier used in the measurement due to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2MHz + N x L<sub>CRB</sub> x 180kHz), where N is 2, 3, 4, 5 for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.
- NOTE 3: Applicable when co-existence with PHS system operating in 1884.5 -1915.7MHz.
- NOTE 4: Void.
- NOTE 5: These requirements also apply for the frequency ranges that are less than F<sub>OOB</sub> (MHz) in Table 6.6.3.1-1, Table 6.6.3.1A-1 in TS 36.101 [5] or in Table 6.5.3.1-1 in TS 38.101-1 [2] from the edge of the channel bandwidth.
- NOTE 6: This requirement is applicable for any channel bandwidths within the range 2500 2570 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2560.5 2562.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2552 2560 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 7: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.
- NOTE 8: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink
- NOTE 9: Applicable when the assigned E-UTRA carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz.
- NOTE 10: As exceptions, measurements with a level up to the applicable requirement of -38 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 2nd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 2nd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 11: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 3rd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 3rd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 12: This requirement is applicable only for the following cases:

  A: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 902.5 MHz

  ≤ Fc < 907.5 MHz with an uplink transmission bandwidth less than or equal to 20 RB;

  B: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 907.5 MHz

  ≤ Fc ≤ 912.5 MHz without any restriction on uplink transmission bandwidth.

  C: for carriers of 10 MHz channel bandwidth when carrier centre frequency (Fc) is Fc = 910 MHz with an uplink transmission bandwidth less than or equal to 32 RB with RBstart > 3.
- NOTE 13: Void.
- NOTE 14: This requirement is applicable for 5 and 10 MHz E-UTRA channel bandwidth allocated within 718-728MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RBstart > 1 and Rbstart < 48.
- NOTE 15: Void.
- NOTE 16: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 17: This requirement is applicable in the case of a 10 MHz E-UTRA carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.
- NOTE 18: This requirement is only applicable for E-UTRA carriers with bandwidth confined within 1885 1920 MHz (requirement for carriers with at least 1RB confined within 1880 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for E-UTRA carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1892.5 1894.5 MHz and for E-UTRA carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1895 1903 MHz.
- NOTE 19: Void.

Table 6.5B.3.3.2.3-2: Spurious emission band UE co-existence limits Rel-16

		Spuri	ous	emission			
EN-DC Configuration	Protected band		ency (MHz	range <u>r</u> )	Maximum Level (dBm)	MBW (MHz)	NOTE
DC_1_n3	E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 40, 43, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76  NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 22, 42, 52 NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1880		1895	-40	1	5,16
	Frequency range	1895		1915	-15.5	5	5, 7, 16
	Frequency range	1915		1920	+1.6	5	5, 7, 16
DC_1_n5	E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 21, 22, 26, 28, 31, 38, 40, 42, 43, 50, 51, 65, 73, 74	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA band 3,34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA band 41, 52 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_1_n7	E-UTRA Band 1, 5, 7, 8, 20, 22, 26, 27, 28, 31,32, 40, 42, 43, 50, 51, 52, 65, 67, 72, 74, 75, 76 NR Band n78, n79	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	band 3, 34	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5
	Frequency range	1880		1895	-40	1	5,16
	Frequency range	1895		1915	-15.5	5	5, 7, 16
	Frequency range	1915		1920	+1.6	5	5, 7, 16
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
DC_1_n8	Frequency range E-UTRA Band 11, 20, 21, 28, 31, 32, 38, 40, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76	2595 F <sub>DL_low</sub>	-	2620 F <sub>DL_high</sub>	-40 -50	1	5, 6
	E-UTRA band 3, 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1, 8, 34	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
	Frequency range	1880		1895	-40	1	5, 16
	Frequency range	1895		1915	-15.5	5	5, 7, 16
DC_1_n28	Frequency range E-UTRA Band 5, 7, 8, 18, 19, 20, 26, 27, 31, 38, 40, 41, 72, 73	1915 FDL low	-	1920 F <sub>DL_high</sub>	+1.6 -50	5 1	5, 7, 16
	NR band n79 E-UTRA Band 1, 22, 32, 42, 43, 50, 51, 52, 65, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR Band n77, n78						
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 1, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	470	-	694	-42	8	5, 17
	Frequency range	470 758	-	710 773	-26.2 -32	6	14 5
	Frequency range Frequency range	758 773	-	803	-32 -50	1	J
	Frequency range	662	-	694	-26.2	6	5
	Frequency range	1880	-	1895	-40	1	5, 16
	Frequency range	1895	-	1915	-15.5	5	5, 7, 16
	Frequency range	1915	-	1920	+1.6	5	5, 7, 16
DC_1_n77	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 40, 41, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1880		1895	-40	1	5, 8
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8
	Frequency range	1915	-	1920	+1.6	5	5, 7, 8

						,	
DC_1_n78	E-UTRA Band 1, 3, 5, 7, 8, 11,						
	18, 19, 20, 21, 26, 28, 34, 40,	F <sub>DL</sub> low	-	$F_{DL\_high}$	-50	1	
	41, 65, 74	_		_ 0			
	Frequency range	1880	-	1895	-40	1	5, 8
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8
	Frequency range	1915	<del>  -</del>	1920	+1.6	5	
DO 4 = 70		1915	-	1920	+1.0	5	5, 7, 8
DC_1_n79	E-UTRA Band 1, 3, 5, 7, 8, 11,	_		_		_	
	18, 19, 21, 26, 28, 34, 40, 41,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	42, 65, 74						
	Frequency range	1880	-	1895	-40	1	5, 8
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8
	Frequency range	1915	-	1920	+1.6	5	5, 7, 8
DC_2_n5	E-UTRA Band 4, 5, 12, 13, 14,	1010		.020		- J	0, 1, 0
DO_2_110	17, 24, 26, 28, 29, 30, 42, 48,	<b>-</b>		$F_{DL\_high}$	-50	1	
		$F_{DL\_low}$	-	□DL_high	-50	'	
	50, 51, 66, 70, 71, 74, 85	_				4	0.5
	NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2, 5
	E-UTRA Band 2, 25, 48	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	5
	E-UTRA Band 41, 43, 53	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_2_n41	E-UTRA Band 4, 5, 12, 13, 14,						
	17, 24, 26, 27, 28, 29, 30, 42,	F <sub>DL low</sub>	-	$F_{DL\_high}$	-50	1	
	48, 50, 51, 66, 70, 71, 74, 85	52_1011		22 <u>_</u> g			
	E-UTRA Bands 2, 25	F <sub>DL_low</sub>		F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 43	I DL_IOW		I DL_nign	-30	'	3
		F <sub>DL</sub> low	-	FDL high	-50	1	2
DC 0 00	NR Band n77						
DC_2_n66	E-UTRA Band 4, 5, 12, 13, 14,			_			
	17, 24, 26, 27, 28, 29, 30, 41,	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	
	50, 51, 66, 70, 71, 74, 85						
	E-UTRA Band 2, 25	F <sub>DL_low</sub>		F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 42, 48						_
	NR Band n77	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	2
DC_2_n71	E-UTRA Band 4, 5, 12, 13, 14,						
DC_2_117 1		F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	17, 24, 26, 29, 30, 48, 66						
	E-UTRA Band 2, 25, 41, 70	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	NR Band n77						
	E-UTRA Band n71	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
DC_2_n78	E-UTRA Band 4, 5, 12, 13, 14,						
	17, 24, 26, 27, 28, 29, 30, 41,	F <sub>DL</sub> low	-	FDL high	-50	1	
	50, 51, 66, 70, 71, 74, 85			_ 3			
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	2
DC_3_n1	E-UTRA Band 1, 5, 7, 8, 11, 18,	I DL_IOW		I DL_IIIgII	30		
DC_3_III							
	19, 20, 21, 26, 27, 28, 31, 32,	_		_	50		
	38, 40, 41, 43, 44, 50, 51, 65,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	67, 72, 73, 74, 75, 76						
	NR Band n79						
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
	E-UTRA Band 22, 42, 52					4	
	NR Band n77, n78	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	Frequency range	1880	-	1895	-40	1	5,16
	Frequency range	1895	-	1915	-15.5	5	5, 7, 16
		1915	-	1920		5	5, 7, 16
DC 0 5	Frequency range	1910	⊢∸	1920	+1.6	ິບ	5, 7, 10
DC_3_n5	E-UTRA Band 1, 5, 7, 8, 11, 18,						
	19, 21, 26, 28, 31, 38, 40, 43,	F <sub>DL low</sub>	_	FDL high	-50	1	
	50, 51, 65, 73, 74	- DL_10W		· DL_mgn			
	NR Band n79						
	E-UTRA band 3,34	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	5
	E-UTRA Band 22, 42, 52					4	
	Band n77, n78	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n7	E-UTRA Band 1, 5, 7, 8, 20, 26,	. 555			• • •	0.0	
DO_5_117		<b>-</b>		E	-50	1	
	27, 28, 31, 32, 33, 34, 40, 43,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	'	
	44, 50, 51, 65, 67, 72, 74, 75, 76	_	$\vdash$				
	E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 22, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	2570	<u> </u>	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
	,90					· · · · · ·	٠, ٠

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DC_3_n28	E-UTRA Band 1, 42, 43, 50, 51,						
	65, 74, 75, 76	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	NR Band n77, n78, n79						
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 5, 7, 8, 18, 19, 20,						
	26, 27, 31, 34, 38, 40, 41, 72	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	E-UTRA Band 11, 21	F <sub>DL_low</sub>		F <sub>DL_high</sub>	-50	1	9, 10
			+-		-41		
	Frequency range	1884.5	-	1915.7		0.3	13
	Frequency range	470	-	710	-26.2	6	14
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9
DC_3_n41	E-UTRA Band 1, 5, 8, 11, 18, 19,	F <sub>DL_low</sub>			-50	1	
	21, 26, 27, 28, 34, 39, 40, 44,		-	$F_{DL\_high}$			
	45, 50, 51, 65, 73, 74			· 22g			
	E-UTRA Band 42, 52	F <sub>DL_low</sub>			-50	1	
	NR Band n77, n78, n79	I DL_IOW	-	$F_DL\_high$	30	•	
		1001 F		101F 7	44	0.2	2
50.0. ==	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n77	E-UTRA Band 1, 3, 5, 7, 8, 11,	_		_			
	18, 19, 20, 21, 26, 28, 34, 39,	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	40, 41, 65, 74						
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n78	E-UTRA Band 1, 3, 5, 7, 8, 11,						
DC 3 n80 ULS	18, 19, 20, 21, 26, 28, 34, 39,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
UP-TDM_n78	40, 41, 65, 74	1 DL_10W		· DL_mgn		-	
01 15M_110	Frequency range	1884.5	† <u>-</u> †	1915.7	-41	0.3	3
DC_3_n79	E-UTRA Band 1, 3, 5, 8, 11, 18,	1004.5		1910.7	-71	0.5	
DC_3_1179		$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	19, 21, 28, 34, 39, 40, 41, 65, 74						
	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_5_n2	E-UTRA Band 4, 5, 12, 13, 14,						
	17, 24, 28, 29, 30, 42, 50, 51,	$F_{DL\_low}$	-	FDL_high	-50	1	
	66, 70, 71, 74, 85			•			
	E-UTRA Band 25	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	5
	NR Band n2	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 26	859	<b>+</b> -	869	-27	1	
	E-UTRA Band 41, 43, 53	000		000		<u>'</u>	
		$F_{DL\_low}$	-	$F_DL\_high$	-50	1	2
DO 5 00	NR Band n77						
DC_5_n66	E-UTRA Band 1, 2, 3, 4, 5, 6, 7,						
	8, 12, 13, 14, 17, 24, 25, 28, 29,	$F_{DL_{low}}$	_	$F_{DL\_high}$	-50	1	
	30, 34, 38, 40, 43, 45, 50, 51,	I DL_IOW		• DL_nigh	30	•	
	65, 66, 70, 71, 85						
	E-UTRA Band 26	859	-	869	-27	1	
	E-UTRA Band 41, 42, 48, 52	_		_	50	4	
	NR Band n77	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_5_n78	E-UTRA Band 1, 2, 3, 4, 5, 7, 8,						
DO_0_1110	12, 13, 14, 17, 24, 25, 28, 29,	F <sub>DL</sub> low		Ea	-50	1	
	30, 31, 34, 38, 40, 45, 65, 66, 70	LDT_low	-	$F_DL\_high$	-30	!	
		050		000	07		
	E-UTRA Band 26	859	-	869	-27	1	
	E-UTRA Band 41	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2,7
DC_7_n1	E-UTRA Band 1, 5, 7, 8, 20, 22,						
	26, 27, 28, 31,32, 40, 42, 43, 50,	Fo	l _ l	Fa	-50	1	
	51, 52, 65, 67, 72, 74, 75, 76	$F_{DL\_low}$	-	$F_{DL\_high}$	-30	'	
	NR Band n78, n79						
	NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	1 - 1	FDL_high	-50	1	5
	Frequency range	1880	+-	1895	-40	1	5,16
		1895	+ -	1915	- <del>15</del> .5	5	
	Frequency range		-				5, 7,16
	Frequency range	1915	-	1920	+1.6	5	5, 7,16
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n3	E-UTRA Band 1, 5, 7, 8, 20, 26,			·	<del></del>		<del></del>
	27, 28, 31, 32, 33, 34, 40, 43,	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	50, 51, 65, 67, 68, 72, 74, 75, 76						
L	, , , , , , , , , , , , .				1		

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	E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 22, 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR Band n77, n78	2570		2575	.4.0	-	F C 7
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n5	E-UTRA Band 1, 2, 3, 4, 5, 7, 8,						
	12, 13, 14, 17, 22, 26, 28, 29,	F <sub>DL low</sub>	-	F <sub>DL_high</sub>	-50	1	
	30, 31, 40, 42, 43, 50, 51, 65,						
	66, 74, 85		-				
	E-UTRA Band 52	F <sub>DL</sub> low	_	FDL high	-50	1	2
	NR Band n77, n78	= -		- 0		_	
	Frequency range	2570	-	2575	+1.6	5	5, 7, 6
	Frequency range	2575	-	2595	-15.5	5	5, 7, 6
	Frequency range	2595	-	2620	-40	1	5, 14
DC_7_n8	E-UTRA Band 1, 20, 28, 31, 32,	_					
	33, 34, 40, 50, 51, 65, 67, 68,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	72, 74, 75, 76						
	E-UTRA band 3, 7, 22, 42, 43,						
	52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR Band n77, n78						
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n28	E-UTRA Band 2, 3, 5, 7, 8, 20,	_		_	50	4	
	26, 27, 31, 34, 40, 72	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 1, 4, 42, 43, 50,						
	51, 65, 66, 74, 75, 76	$F_{DL\_low}$	-	F <sub>DL high</sub>	-50	1	2
	NR Band n78						
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-50	1	
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC 7 ncc	1 7 5		-		- <del>4</del> 0 -50	1	5, 6
DC_7_n66	E-UTRA Band 2, 4, 5, 7, 12, 13,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	I	
	14, 17, 26, 27, 28, 29, 30, 43,						
	50, 51, 66, 74, 85	_	-	_	<b>50</b>	4	
	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n78	E-UTRA Band 1, 2, 3, 4, 5, 7, 8,						
	11, 18, 19, 20, 21, 26, 27, 28,	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	
	31, 32, 33, 34, 40, 50, 51, 65,	I DE_low		· DL_mgn	00		
	66, 67, 68, 72, 74, 75, 76						
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_8_n1	E-UTRA Band 20, 28, 31, 32, 38,						
		F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	40, 50, 51, 65, 67, 72, 73, 74,	I DL_IOW		- DEg	00		
	75, 76	I DL_IOW		- 21_mgn			
		I DL_IOW		- 2g			
	75, 76 E-UTRA Band 3, 7, 22, 41, 42, 43, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	75, 76 E-UTRA Band 3, 7, 22, 41, 42,	_	-	_			
	75, 76 E-UTRA Band 3, 7, 22, 41, 42, 43, 52	_	-	_			5
	75, 76 E-UTRA Band 3, 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	75, 76 E-UTRA Band 3, 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79 E-UTRA Band 1, 8, 34	F <sub>DL_low</sub>	- - -	F <sub>DL_high</sub>	-50 -50	1	5
	75, 76 E-UTRA Band 3, 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79 E-UTRA Band 1, 8, 34 E-UTRA Band 11, 21 Frequency range	FDL_low FDL_low		FDL_high FDL_high FDL_high	-50 -50 -50	1 1 1	5 12 5, 12
	75, 76  E-UTRA Band 3, 7, 22, 41, 42, 43, 52  NR Band n77, n78, n79  E-UTRA Band 1, 8, 34  E-UTRA Band 11, 21  Frequency range  Frequency range	F <sub>DL_low</sub> F <sub>DL_low</sub> F <sub>DL_low</sub> 860 1880	- - -	F <sub>DL_high</sub> F <sub>DL_high</sub> F <sub>DL_high</sub> 890 1895	-50 -50 -50 -40 -40	1 1 1 1 1	5 12 5, 12 5, 16
	75, 76  E-UTRA Band 3, 7, 22, 41, 42, 43, 52  NR Band n77, n78, n79  E-UTRA Band 1, 8, 34  E-UTRA Band 11, 21  Frequency range  Frequency range  Frequency range	F <sub>DL_low</sub> F <sub>DL_low</sub> F <sub>DL_low</sub> 860 1880 1895	- - -	F <sub>DL_high</sub> F <sub>DL_high</sub> F <sub>DL_high</sub> 890 1895 1915	-50 -50 -50 -40 -40 -15.5	1 1 1 1 1 5	5 12 5, 12 5, 16 5, 7, 16
DC 8 n3	75, 76  E-UTRA Band 3, 7, 22, 41, 42, 43, 52  NR Band n77, n78, n79  E-UTRA Band 1, 8, 34  E-UTRA Band 11, 21  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range	FDL_low FDL_low FDL_low 860 1880	- - -	F <sub>DL_high</sub> F <sub>DL_high</sub> F <sub>DL_high</sub> 890 1895	-50 -50 -50 -40 -40	1 1 1 1 1	5 12 5, 12 5, 16
DC_8_n3	75, 76  E-UTRA Band 3, 7, 22, 41, 42, 43, 52  NR Band n77, n78, n79  E-UTRA Band 1, 8, 34  E-UTRA Band 11, 21  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 1, 20, 28, 31, 32,	F <sub>DL_low</sub> F <sub>DL_low</sub> F <sub>DL_low</sub> 860 1880 1895		F <sub>DL_high</sub> F <sub>DL_high</sub> 890 1895 1915	-50 -50 -50 -40 -40 -15.5 +1.6	1 1 1 1 1 5 5	5 12 5, 12 5, 16 5, 7, 16
DC_8_n3	75, 76 E-UTRA Band 3, 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79 E-UTRA Band 1, 8, 34 E-UTRA Band 11, 21 Frequency range Frequency range Frequency range Frequency range E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 44, 50, 51,	F <sub>DL_low</sub> F <sub>DL_low</sub> F <sub>DL_low</sub> 860 1880 1895		F <sub>DL_high</sub> F <sub>DL_high</sub> F <sub>DL_high</sub> 890 1895 1915	-50 -50 -50 -40 -40 -15.5	1 1 1 1 1 5	5 12 5, 12 5, 16 5, 7, 16
DC_8_n3	75, 76  E-UTRA Band 3, 7, 22, 41, 42, 43, 52  NR Band n77, n78, n79  E-UTRA Band 1, 8, 34  E-UTRA Band 11, 21  Frequency range  Frequency range  Frequency range  Frequency range  Frequency range  E-UTRA Band 1, 20, 28, 31, 32,	F <sub>DL_low</sub> F <sub>DL_low</sub> F <sub>DL_low</sub> 860 1880 1895		F <sub>DL_high</sub> F <sub>DL_high</sub> 890 1895 1915	-50 -50 -50 -40 -40 -15.5 +1.6	1 1 1 1 1 5 5	5 12 5, 12 5, 16 5, 7, 16

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	E-UTRA Band 11, 21	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	12
	E-UTRA Band 7, 22, 41, 42, 43,						
	52				-50	1	2
	NR Band n77, n78, n79	$F_{DL\_low}$	-	F <sub>DL_high</sub>			
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 12
	Frequency range	860	-	890	-40	1	5, 12
DC_8_n20	E-UTRA Band 1, 31, 32, 33, 34,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	0, 12
DC_6_1120	40, 50, 51, 65, 67, 68, 72, 74, 75, 76	L Dr_low	-	I DL_nigh	-30	'	
	E-UTRA Band 3, 7, 22, 38, 42, 43, 52, 69	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR band n77, n78						
	E-UTRA Band 8, 20	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5
	Frequency range	758	-	788	-50	1	
DC_8_n28	E-UTRA Band 20, 31, 34, 38, 40, 72	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA band 3, 7, 22, 41, 42, 43, 50, 51, 65, 73, 74, 75, 76 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 1	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2, 9, 11
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 11, 21	F <sub>DL</sub> low	-	F <sub>DL_high</sub>	-50	1	9, 10, 12
	Frequency range	470	-	694	-42	8	5, 17
	Frequency range	470	-	710	-26.2	6	14
		662	-	694	-26.2	6	5
	Frequency range		+				
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-50	1	
	Frequency range	860	-	890	-40	1	5, 12
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9, 12
DC_8_n41	E-UTRA Band 1, 11, 21, 28, 34, 39, 40, 45, 50, 51, 65, 73, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 3, 42, 52 NR Band n77, n78, n79	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 8	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5
	Frequency range	860	-	890	-40	1	5, 12
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_8_n77	E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 3, 7, 41	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	12
	Frequency range	860	-	890	-40	1	5, 12
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 12
DC_8_n78	E-UTRA Band 1, 20, 28, 34, 39, 40, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	0, 12
	E-UTRA Band 3, 7,41	F <sub>DL_low</sub>	1_	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 8		+_+		-50	1	5
		F <sub>DL_low</sub>	╁┸	FDL_high		1	12
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		
	Frequency range	860	-	890	-40	1	5, 12
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 12
DC_11_n77	E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_11_n78	E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
			+ +				ა
	Frequency range	2545	-	2575	-50	1	
DO 44 70	Frequency range	2595	-	2645	-50	1	
DC_11_n79	E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 42, 65	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	

ı							
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1 1	
DC 40 =00	Frequency range	2595	-	2645	-50	1	
DC_12_n66	E-UTRA Band 2, 5, 13, 14, 17, 25, 26, 27, 30, 41, 53, 71, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 4, 48, 50, 51, 66,					+	
	70,	FDL low	_	F <sub>DL_high</sub>	-50	1	2
	NR Band n77	· DL_IOW		· DL_IIIgII	00	'	_
	E-UTRA Band 12, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_12_n78	E-UTRA Band 2, 5, 7, 13, 17, 25,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	26, 41, 71						
	E-UTRA Band 4, 66	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	E-UTRA band 12	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_13_n2	E-UTRA Band 4, 5,12,13,17, 26,	$F_{DL\_low}$	_	$F_{DL\_high}$	-50	1	
	29, 41, 48, 66, 70, 71						
	E-UTRA Band 2,14, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 30	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1 0.006	2
	Frequency range	769	-	775	-35	0.006 25	5
						0.006	
	Frequency range	799	-	805	-35	25	5
DC_13_n66	E-UTRA Band 2, 4, 5, 12, 13, 17,					20	
50_10_1100	25, 26, 27, 29, 41, 50, 51, 53,	FDL low	-	F <sub>DL_high</sub>	-50	1	
	66, 70, 71, 74, 85	. 52011		· 22g			
	E-UTRA Band 14	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 30, 48,	F <sub>DL</sub> low	-	E <sub>5</sub> ,	-50	1	2
	NR Band n77	LDT_low	_	F <sub>DL_high</sub>	-50		۷
		769	_	775	-35	0.006	5
	Frequency range	700		7.70		25	
	_	799	-	803	-35	0.006	5
DC 14 p2	Frequency range				50	25	1
DC_14_n2	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 29, 30, 41, 48,	F <sub>DL low</sub>		F <sub>DL high</sub>	-50	1	
	53, 66, 70, 71, 85	I DL_low		I DL_nign			
	E-UTRA band 2, 25	_		_	-50	1	2
	NR Band n77	$F_{DL\_low}$	-	$F_{DL\_high}$			_
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
DC_14_n66	E-UTRA Band 2, 4, 5, 12, 13, 14,				-50	1	
	17, 25, 26, 27, 29, 30, 41, 53,	$F_{DL\_low}$	-	$F_{DL\_high}$			
	66, 70, 71, 85						
	E-UTRA band 48	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	2
	NR Band n77				0.5	0.00005	_
	Frequency range	769	-	775	-35	0.00625	5
DC_19_n77	Frequency range E-UTRA Band 1, 3, 11, 21, 28,	799	-	805	-35	0.00625	5
DC_18_U//	34, 40, 65, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
				555			
1			_	1915.7	-41	0.3	- 3
	Frequency range	1884.5	-	1915.7 2575	-41 -50	0.3	3
	Frequency range Frequency range		-	2575		1 -	3
DC_19_n78	Frequency range	1884.5 2545 2595	-	2575 2645	-50 -50	1 1	3
DC_19_n78	Frequency range Frequency range Frequency range	1884.5 2545	-	2575	-50	1	3
DC_19_n78	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28,	1884.5 2545 2595	-	2575 2645 F <sub>DL_high</sub> 960	-50 -50	1 1	
DC_19_n78	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74 Frequency range Frequency range	1884.5 2545 2595 FDL_low 945 1884.5	-	2575 2645 F <sub>DL_high</sub> 960 1915.7	-50 -50 -50 -50 -41	1 1 1 1 0.3	3
DC_19_n78	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74 Frequency range Frequency range Frequency range	1884.5 2545 2595 FDL_low 945 1884.5 2545	-	2575 2645 F <sub>DL_high</sub> 960 1915.7 2575	-50 -50 -50 -50 -41 -50	1 1 1 1 0.3	
	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74 Frequency range Frequency range Frequency range Frequency range Frequency range	1884.5 2545 2595 FDL_low 945 1884.5	-	2575 2645 F <sub>DL_high</sub> 960 1915.7	-50 -50 -50 -50 -41	1 1 1 1 0.3	
DC_19_n78	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74 Frequency range Frequency range Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28,	1884.5 2545 2595 FDL_low 945 1884.5 2545 2595	-	2575 2645 FDL_high 960 1915.7 2575 2645	-50 -50 -50 -50 -41 -50 -50	1 1 1 0.3 1 1	
	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74 Frequency range Frequency range Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 42, 65, 74	1884.5 2545 2595 FDL_low 945 1884.5 2545 2595 FDL_low		2575 2645 FDL_high 960 1915.7 2575 2645 FDL_high	-50 -50 -50 -50 -41 -50 -50	1 1 1 0.3 1 1	
	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74 Frequency range Frequency range Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 42, 65, 74 Frequency range	1884.5 2545 2595 FDL_low 945 1884.5 2545 2595 FDL_low 945	-	2575 2645 FDL_high 960 1915.7 2575 2645 FDL_high	-50 -50 -50 -50 -41 -50 -50 -50	1 1 1 0.3 1 1 1	3
	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74 Frequency range Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 42, 65, 74 Frequency range Frequency range Frequency range	1884.5 2545 2595 FDL_low 945 1884.5 2545 2595 FDL_low 945 1884.5		2575 2645 FDL_high 960 1915.7 2575 2645 FDL_high 960 1915.7	-50 -50 -50 -50 -41 -50 -50 -50 -50	1 1 1 0.3 1 1 1 1 0.3	
	Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74 Frequency range Frequency range Frequency range Frequency range Frequency range E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 42, 65, 74 Frequency range	1884.5 2545 2595 FDL_low 945 1884.5 2545 2595 FDL_low 945		2575 2645 FDL_high 960 1915.7 2575 2645 FDL_high	-50 -50 -50 -50 -41 -50 -50 -50	1 1 1 0.3 1 1 1	3

DC_20_n1	E-UTRA Band 1, 3, 7, 8, 20, 22,						
	31, 32, 34, 40, 43, 50, 51, 65,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	67, 68, 72, 75, 76						
	E-UTRA Band 38, 42, 69	L			50		0
	NR Band n77, n78	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	Frequency range	758	-	788	-50	1	
DC_20_n3	E-UTRA Band 1, 7, 8, 31, 32, 33,					<u> </u>	
DO_20_113	34, 40, 43, 50, 51, 65, 67, 72,	F <sub>DL</sub> low		FDL high	-50	1	
		L Dr_low	1 - 1	I DL_nign	-30	'	
	74, 75, 76						
	E-UTRA Band 20	FDL low	-	FDL high	-50	1	5
	E-UTRA Band 3						-
	E-UTRA Band 22, 38, 42, 52	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	2
	Frequency range	758	-	788	-50	1	
DC_20_n7	E-UTRA Band 1, 3, 7, 8, 22, 31,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	32, 33, 34, 40, 43, 50, 51, 65,						
	67, 68, 72, 74, 75, 76						
	E-UTRA Band 42, 52	F <sub>DL low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR band n77, n78	· DL_10#		· DL_mgm			_
	E-UTRA Band 20	F <sub>DL</sub> low	-	F <sub>DL_high</sub>	-50	1	5
DC_20_n8	E-UTRA Band 1, 28, 31, 32, 34,	I DL_IOW		i DL_nign	- 00	'	<u> </u>
DC_20_110	65, 75, 76	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
			$\vdash$				
	E-UTRA Band 3, 7, 22, 38, 42,	_		_	50	_	_
	43	FDL_low	-	$F_{DL\_high}$	-50	1	2
	NR Band n78						
DC_20_n28	E-UTRA Band 3, 7, 8, 31, 34	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 1, 22, 32, 38, 42,	F <sub>DL</sub> low		FDL high	-50	1	2
	43, 65, 75, 76	I DL_IOW	_	I DL_nign	-30	'	۷
DC_20_n78	E-UTRA Band 1, 3, 7, 8, 31, 32,	F <sub>DL</sub> low	-	F <sub>DL_high</sub>	-50	1	
	33, 34, 40, 50, 51, 65, 67, 68,	_		_ 0			
	72, 74, 75, 76						
	E-UTRA Band 20	F <sub>DL</sub> low	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 38, 69	F <sub>DL_low</sub>	-	FDL_high	-50	1	2
DC_21_n77	E-UTRA Band 1, 3, 18, 19, 21,	I DL_IOW		I DL_nign	-30	<b>'</b>	
DC_21_11//		$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	28, 34, 40, 65	0.45		000	50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_21_n78	E-UTRA Band 1, 3, 18, 19, 21,	Г		Г	<b>5</b> 0	1	
	28, 34, 40, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	J
			H		-50	1	
DC 04 70	Frequency range	2595	+	2645	-50	1	
DC_21_n79	E-UTRA Band 1, 3, 18, 19, 21,	F <sub>DL low</sub>	-	FDL high	-50	1	
	28, 34, 40, 42, 65	_					
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	<u>L -</u> ]	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_25_n41	E-UTRA Band 4, 5, 12, 13, 14,						
	17, 24, 26, 27, 28, 29, 30, 42,	$F_{DL\_low}$	_	$F_{DL\_high}$	-50	1	
	45, 48, 66, 70,71	· DL_IOW		· DL_IIIGII			
	E-UTRA Band 2, 25,						
	L OTTA Dalla 2, 23,	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	5
	ND Pand n77	<b>C</b>	$\vdash$	E ·	E0	4	2
DC 00 11	NR Band n77	F <sub>DL_low</sub>	+	F <sub>DL_high</sub>	-50	1	2
DC_26_n41	E-UTRA Band 1, 2, 3, 4, 5, 11,						
	12, 13, 14, 17, 18, 19, 21, 24,	F <sub>DL</sub> low	_	F <sub>DL_high</sub>	-50	1	
	25, 26, 29, 30, 31, 34, 39, 42,	. DL_10W		· DL_mgn		'	
	43, 48, 50, 51, 65, 66, 70, 71, 74						
	Frequency range	1884.5		1915.7	-41	0.3	3
	Frequency range	703	-	799	-50	1	
	Frequency range	799	-	803	-40	1	5
	Frequency range	945	-	960	-50	1	
DC_26_n77	E-UTRA Band 1, 3, 5, 11, 18, 19,			000			
DO_20_11/ /		$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
I	21, 26, 34, 39, 40, 65, 74		1			i	

E-U1RA Bafid 41	I	E LITEA D. LAA		1 1	_		1 4	
Frequency range		E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
Frequency range		, , ,		-				
Frequency range				-				5
Frequency range				-				
Frequency range		Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_26_n78		Frequency range		-				2
21, 26, 34, 39, 40, 66, 74			2595	-	2645	-50	1	
E-UTRA Band 41	DC_26_n78		F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
Frequency range			FDL low	-	FDL high	-50	1	2
Frequency range				-				
Frequency range				-				5
Frequency range				_				-
Frequency range		, , ,		-			_	3
Frequency range				-			1	
DC_26_n79				1				
21, 26, 34, 39, 40, 65, 74	DC 26 p70	<del>, , , , , , , , , , , , , , , , , , , </del>	2000		2040			
Frequency range	DC_20_1179	21, 26, 34, 39, 40, 65, 74		-				
Frequency range				1				2
Frequency range		, , ,		1			1	
Frequency range		Frequency range		-				5
Frequency range		Frequency range		-				
Frequency range		Frequency range	1884.5	-	1915.7		0.3	3
DC_28_n3		Frequency range	2545	-	2575	-50	1	
S1, 65, 74, 75, 76, NR Band 177, n78		Frequency range	2595	-	2645	-50	1	
NR Band n77, n78	DC_28_n3	E-UTRA Band 1, 22, 42, 43, 50,				-50	1	2
E-UTRA Band 1 E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 27, 31, 34, 38, 40, 41, 72, 73  NR Band n79 E-UTRA Band 11, 21 FDL_low Frequency range FDL_blow FROL_blow FDL_blow FDL_blow FDL_blow FDL_blow FDL_blow FDL_blow FDL_blow FDL_blow FROL_blow			$F_{DL\_low}$	-	$F_{DL\_high}$			
E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 27, 31, 34, 38, 40, 41, 72, 73  NR Band n79  E-UTRA Band 11, 21  FDL_low  FFDL_high  FDL_high  F			FDL low	-	FDI high	-50	1	9. 11
20, 26, 27, 31, 34, 38, 40, 41, 72, 73   NR Band n79   E-UTRA Band 11, 21   FDL_low   - FDL_high   -50   1   9, 10   Frequency range   470   -710   -26.2   6   14   Frequency range   758   -773   -32   1   5   Frequency range   773   - 803   -50   1   7   10   -26.2   6   14   7   10   10   10   10   10   10   10			1 22_1011		* 22g			<u> </u>
T2, 73   FDL_low   FDL_high   F			_		_			
NR Band n79			FDL_low	-	FDL_high			
E-UTRA Band 11, 21								
Frequency range			FDL low	_	FDL bigh	-50	1	9 10
Frequency range			_	_				
Frequency range				1				
Frequency range				-				3
DC_28_n5				-				2.0
18, 19, 24, 25, 26, 28, 30, 31, 34, 38, 40, 70, 71  E-UTRA Band 4, 22, 32, 41, 42, 43, 45, 48, 50, 51, 52, 65, 66, 73, 74, 75, 76  NR Band n77, n78, n79  E-UTRA Band 1 FDL_low - FDL_high -50 1 9, 10  Frequency range 1884.5 - 1915.7 -41 0.3 3, 9  Frequency range 470 - 694 -42 8 5, 17  Frequency range 470 - 710 -26.2 6 14  Frequency range 662 - 694 -26.2 6 5  Frequency range 773 - 803 -50 1  DC_28_n7  DC_28_n7  DC_28_n7  E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76  NR band n7  FDL_low - FDL_high -50 1  PDL_high -50 1  9, 10  9, 11  9, 11  9, 11  9, 11  9, 11  9, 11  9, 11  9, 10  FDL_low - FDL_high -50 1  5, 17  Frequency range 770  -694 -42 8 5, 17  Frequency range 771  -694 -26.2 6 55  Frequency range 773 - 803 -50 1  DC_28_n7  E-UTRA Band 2, 3, 5, 8, 20, 26, 27, 31, 34, 40, 72  NR band n7  E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76  NR band n7  E-UTRA band 1 FDL_low - FDL_high -50 1 2, 9, 10  Frequency range 758 - 773 -32 1 5  Frequency range 758 - 773 -32 1 5  Frequency range 758 - 773 -32 1 5  Frequency range 758 - 773 -32 1 5  Frequency range 758 - 773 -32 1 5  Frequency range 758 - 773 -32 1 5  Frequency range 758 - 773 -32 1 5  Frequency range 758 - 758 - 750 1 7  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1  Frequency range 758 - 750 - 50 1	DC 20 nF			-			0.3	3, 9
E-UTRA Band 4, 22, 32, 41, 42, 43, 45, 48, 50, 51, 52, 65, 66, 73, 74, 75, 76 NR Band n77, n78, n79 E-UTRA Band 1 E-UTRA Band 11, 21 FDL_low - FDL_high -50 1 9, 10 Frequency range 1884.5 - 1915.7 -41 0.3 3, 9 Frequency range 470 - 694 -42 8 5, 17 Frequency range 662 - 694 -26.2 6 14 Frequency range 758 - 773 -32 1 5 Frequency range 773 - 803 -50 1  DC_28_n7  E-UTRA Band 2, 3, 5, 8, 20, 26, 27, 31, 34, 40, 72 NR band n7 E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76 NR band 1 Frequency range 758 - 773 -32 1 5 Frequency range 758 - 773 -50 1  E-UTRA Band 1 FDL_low - FDL_high -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 773 -50 1 Frequency range 758 - 750 1 Frequency range 758 - 750 1 Frequency range 758 - 750 -50 1 Frequency range 758 - 750 -50 1 Frequency range 758 - 750 -50 1 Frequency range 758 - 750 -50 1	DC_26_113	18, 19, 24, 25, 26, 28, 30, 31,	FDL_low	-	FDL_high	-50		
E-UTRA Band 1		43, 45, 48, 50, 51, 52, 65, 66, 73, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
E-UTRA Band 11, 21			_	$\vdash \vdash$		<b>5</b> 0		0 11
Frequency range				1 1				
Frequency range				1				
Frequency range				-				
Frequency range 662 - 694 -26.2 6 5 Frequency range 758 - 773 -32 1 5 Frequency range 773 - 803 -50 1  DC_28_n7  E-UTRA Band 2, 3, 5, 8, 20, 26, 27, 31, 34, 40, 72 NR band n7 E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76 NR band n77, n78 E-UTRA band 1 FDL_low - FDL_high 750 1 2, 9, 10 Frequency range 758 - 773 -32 1 5 Frequency range 773 - 803 -50 1 Frequency range 773 - 803 -50 1 Frequency range 2570 - 2575 +1.6 5 5, 6, 7 Frequency range 2575 - 2595 -15.5 5 5, 6, 7		, , ,		-				
Frequency range 758 - 773 -32 1 5  Frequency range 773 - 803 -50 1  DC_28_n7  E-UTRA Band 2, 3, 5, 8, 20, 26, 27, 31, 34, 40, 72 NR band n7  E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76 NR band n77, n78  E-UTRA band 1 FDL_low - FDL_high NR band n77, n78  E-UTRA band 1 Frequency range 758 - 773 -32 1 5 Frequency range 773 - 803 -50 1 Frequency range 2570 - 2575 +1.6 5 5, 6, 7 Frequency range 2575 - 2595 -15.5 5 5, 6, 7		Frequency range		-				
Frequency range 773 - 803 -50 1  DC_28_n7  E-UTRA Band 2, 3, 5, 8, 20, 26, 27, 31, 34, 40, 72 NR band n7  E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76 NR band n77, n78  E-UTRA band 1 FDL_low - FDL_high NR band n77, n78  E-UTRA band 1 Frequency range 758 - 773 -32 1 5 Frequency range 773 - 803 -50 1 Frequency range 2570 - 2575 +1.6 5 5, 6, 7 Frequency range 2575 - 2595 -15.5 5 5, 6, 7		Frequency range	662	-	694	-26.2	6	5
DC_28_n7       E-UTRA Band 2, 3, 5, 8, 20, 26, 27, 31, 34, 40, 72       FDL_low       - FDL_high       -50       1         NR band n7       E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76 NR band n77, n78       FDL_low       - FDL_high       -50       1       2         E-UTRA band 1       FDL_low       - FDL_high       -50       1       2, 9, 10         Frequency range       758       - 773       -32       1       5         Frequency range       773       - 803       -50       1         Frequency range       2570       - 2575       +1.6       5       5, 6, 7         Frequency range       2575       - 2595       -15.5       5       5, 6, 7		Frequency range	758	<u> </u>	773	-32	1	5
DC_28_n7       E-UTRA Band 2, 3, 5, 8, 20, 26, 27, 31, 34, 40, 72       FDL_low       - FDL_high       -50       1         NR band n7       E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76 NR band n77, n78       FDL_low       - FDL_high       -50       1       2         E-UTRA band 1       FDL_low       - FDL_high       -50       1       2, 9, 10         Frequency range       758       - 773       -32       1       5         Frequency range       773       - 803       -50       1         Frequency range       2570       - 2575       +1.6       5       5, 6, 7         Frequency range       2575       - 2595       -15.5       5       5, 6, 7		Frequency range	773		803	-50	1	
E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76       FDL_low       -       FDL_high       -50       1       2         NR band n77, n78       -       FDL_low       -       FDL_high       -50       1       2, 9, 10         E-UTRA band 1       FDL_low       -       FDL_high       -50       1       2, 9, 10         Frequency range       758       -       773       -32       1       5         Frequency range       773       -       803       -50       1         Frequency range       2570       -       2575       +1.6       5       5, 6, 7         Frequency range       2575       -       2595       -15.5       5       5, 6, 7	DC_28_n7	27, 31, 34, 40, 72	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
NR band n77, n78       FDL_low       FDL_high       -50       1       2, 9, 10         E-UTRA band 1       FDL_low       - FDL_high       -50       1       2, 9, 10         Frequency range       758       - 773       -32       1       5         Frequency range       773       - 803       -50       1         Frequency range       2570       - 2575       +1.6       5       5, 6, 7         Frequency range       2575       - 2595       -15.5       5       5, 6, 7		E-UTRA Band 4, 22, 32, 42, 43,	_		_	-50	1	2
Frequency range         758         -         773         -32         1         5           Frequency range         773         -         803         -50         1           Frequency range         2570         -         2575         +1.6         5         5, 6, 7           Frequency range         2575         -         2595         -15.5         5         5, 6, 7		NR band n77, n78		_				
Frequency range         773         -         803         -50         1           Frequency range         2570         -         2575         +1.6         5         5, 6, 7           Frequency range         2575         -         2595         -15.5         5         5, 6, 7				1 1				
Frequency range         2570         -         2575         +1.6         5         5, 6, 7           Frequency range         2575         -         2595         -15.5         5         5, 6, 7				-			1	5
Frequency range 2575 - 2595 -15.5 5 5, 6, 7		Frequency range		-				
		Frequency range		-				
Frequency range 2595 - 2620 -40 1 5, 6		Frequency range		<u> </u>				
		Frequency range	2595	-	2620	-40	1	5, 6

DO 00 77	E HTDA D. 10 5 7 0 40 40		1 1	1		1	1
DC_28_n77	E-UTRA Band 3, 5, 7, 8, 18, 19,	FDL low	-	FDL high	-50	1	
	20, 26, 34, 39, 40, 41	_		- 0			
	E-UTRA Band 1, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 11, 21	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	9, 10
	Frequency range	758	-	773	-32	1	
	Frequency range	773	-	803	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9
DC_28_n78	E-UTRA Band 3, 5, 7, 8, 18, 19,	_		٦	<b>50</b>	4	
	20, 26, 34, 39, 40, 41	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	E-UTRA Band 1, 65, 74	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	758	-	773	-32	1	,
	Frequency range	773	-	803	-50	1	
	Frequency range	1884.5	+-	1915.7	-41	0.3	3
DC_28_n79	E-UTRA Band 3, 5, 8, 18, 19, 34,	1004.0		1910.7	- <b>-</b>	0.0	<u> </u>
DO_20_1179	39, 40, 41	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 1, 42, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	758	-	773	-32	1	
	Frequency range	773	-	803	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9
DC_30_n5	E-UTRA Band 2, 4, 5, 7, 12, 13,	1001.0		1010.7		0.0	0, 0
DO_00_110	14, 17, 24, 25, 26, 29, 30, 38, 48, 66, 70, 71, 85	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 41, 53 NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_38_n78	THE BUILD III		N/	'Δ			
DC_39_n41	E-UTRA Band 1, 8, 26, 28, 34,		T 1	7.			
DO_55_1141	40, 42, 44, 45, 50, 51, 74	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	NR Band n77, n78, n79	F <sub>DL_low</sub>	<b>-</b>	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1805	-	1855	-40	1	5
		1855	+-	1880	-15.5	5	5, 7, 19
DC_39_n79	Frequency range	1000	+	1000	-10.0	5	5, 7, 19
DC_39_11/9	E-UTRA Band 1, 8, 28, 34, 40, 41, 44, 45	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	1805	-	1855	-40	1	18
	Frequency range	1855	-	1880	-15.5	5	18
DC_40_n1	E-UTRA Band 1, 3, 5, 7, 8, 20, 22, 26, 27, 28, 31, 32, 38, 41, 42, 43, 44, 45, 50, 51, 52, 65, 67, 68, 69, 72, 73, 74, 75, 76 NR Band n78	F <sub>DL_low</sub>		$F_{DL\_high}$	-50	1	
	E-UTRA Band 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	NR Band n77, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_40_n41	Bands 1, 3, 5, 8, 26, 27, 28, 34, 39, 42, 44, 45, 50, 51, 65, 73,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	74, NR Band n77, n78 NR Band n79	<b>-</b>	$\vdash$	E	-50	1	2
DC_40_n78	E-UTRA Band 1, 3, 5, 7, 8, 18,	F <sub>DL_low</sub>	<del> </del> -	F <sub>DL_high</sub>	-30	'	۷
DC_40_1176	19, 20, 21, 26, 27, 28, 31, 32, 33, 34, 38, 39, 41, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	NR Band n79	F <sub>DL_low</sub>	1-1	F <sub>DL_high</sub>	-50	1	2
		1884.5	1-1	1915.7	-41	0.3	3
	Frequency range				1.1		
DC_40_n79	Frequency range Bands 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 41, 42, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_40_n79	Bands 1, 3, 5, 8, 11, 18, 19, 21,	$F_{DL\_low}$	-	$F_{DL\_high}$			
	Bands 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 41, 42, 65, 74 NR band n78 Frequency range		-		-50 -41		3
DC_40_n79  DC_41_n77	Bands 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 41, 42, 65, 74 NR band n78 Frequency range E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 33, 34, 39, 40,	$F_{DL\_low}$	-	$F_{DL\_high}$		1	
	Bands 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 41, 42, 65, 74 NR band n78 Frequency range E-UTRA Band 1, 3, 5, 8, 11, 18,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-41	0.3	

DO 11 70	E LITEA D. 14 0 5 0 44 40	ı	1			1	
DC_41_n78	E-UTRA Band 1, 3, 5, 8, 11, 18,	_		_	50		
	19, 21, 26, 28, 34, 39, 40, 44,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	45, 74						
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_41_n79	E-UTRA Band 1, 3, 5, 8, 11, 18,						
	19, 21, 26, 28, 34, 40, 42, 44,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	45, 65, 74						
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_42_n77			N/	Ά			
DC_42_n78			N/	Ά			
DC_42_n79			N/	Ά			
DC_48_n5	E-UTRA Band 2, 4, 5, 12, 13, 14,						
	17, 24, 25, 26, 29, 30, 50, 51,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	66, 70, 71, 74, 85						
	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_48_n66	E-UTRA Band 2, 4, 5, 12, 13, 14,				• •		
20_10_1100	17, 24, 25, 26, 29, 30, 41, 50,	F <sub>DL low</sub>	_	F <sub>DL high</sub>	-50	1	
	51, 66, 70, 71, 74, 85	· DL_low		• DL_IIIgII	00		
DC_66_n2	E-UTRA Band 4, 5, 12, 13, 14,						
DO_00_112	17, 24, 26, 27, 28, 29, 30, 41,	F <sub>DL</sub> low	_	FDL high	-50	1	
	50, 51, 53, 66, 70, 71, 74, 85	I DL_IOW		I DL_nign	-30	!	
	E-UTRA Band 25	F <sub>DL_low</sub>	+_	F <sub>DL_high</sub>	-50	1	5
	E-UTRANR Band n2	FDL low		FDL high	-50	1	5
	E-UTRA Band 22, 42, 43,	I DL_IOW	+	I DL_nign		1	
	NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_66_n5	E-UTRA Band 1, 2, 3, 4, 5, 6, 7,		-				
DC_00_115							
	8, 12, 13, 14, 17, 24, 25, 26, 28,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	29, 30, 34, 38, 40, 43, 45, 50,						
	51, 65, 66, 70, 71, 85						
	E-UTRA Band 41, 42, 48, 52	$F_{DL\_low}$	-	F <sub>DL high</sub>	-50	1	2
	NR Band n77						
	E-UTRA Band 2, 4, 5, 12, 13, 14,	_		_	50		
	17, 24, 25, 26, 27, 28, 29, 30,	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_66_n41	43, 50, 51, 66, 70, 71, 74, 85						
	E-UTRA Band 42, 48	F <sub>DL</sub> low	-	FDL high	-50	1	2
	NR Band n77	1 220		- 22g		-	_
DC_66_n71	E-UTRA Band 4, 5, 13, 14, 17,	_		_		_	
	24, 26, 27, 29, 30, 43, 50, 51,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	66, 74		$\downarrow$				
	E-UTRA Band 2, 7, 22, 25, 41,			_			_
	42, 48, 70	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	NR Band n77						
	E-UTRA Band 71	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
DC_66_n78	E-UTRA Band 1, 3, 5, 7, 8, 20,	FDL low		FDL high	-50	1	
DO_00_11/0	26, 28, 34, 39, 40, 41, 65	I DL_IOW		i DL_nign	-30	1	

- NOTE 1: F<sub>DL\_low</sub> and F<sub>DL\_high</sub> refer to each frequency band specified in Table 5.5-1 in TS 36.101 [5] or in Table 5.2-1 in TS 38.101-1 [2].
- NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 in TS 36.101 [5] and Table 6.5.3.1-2 in TS 38.101-1 [2] are permitted for each assigned carrier used in the measurement due to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2 MHz + N x Lcrb x 180 kHz), where N is 2, 3, 4, 5 for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.
- NOTE 3: Applicable when co-existence with PHS system operating in 1884.5 1915.7 MHz
- NOTE 4: Void.
- NOTE 5: These requirements also apply for the frequency ranges that are less than F<sub>OOB</sub> (MHz) in Table 6.6.3.1-1, Table 6.6.3.1A-1 in TS 36.101 [5] or in Table 6.5.3.1-1 in TS 38.101-1 [2] from the edge of the channel bandwidth.
- NOTE 6: This requirement is applicable for any channel bandwidths within the range 2500 2570 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2560.5 2562.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2552 2560 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB
- NOTE 7: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.
- NOTE 8: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink
- NOTE 9: Applicable when the assigned E-UTRA or NR carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz.
- NOTE 10: As exceptions, measurements with a level up to the applicable requirement of -38 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 2nd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 2nd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 11: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 3rd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 3rd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 12: This requirement is applicable only for the following cases: A: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 902.5 MHz ≤ Fc < 907.5 MHz with an uplink transmission bandwidth less than or equal to 20 RB; B: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 907.5 MHz ≤ Fc ≤ 912.5 MHz without any restriction on uplink transmission bandwidth; C: for carriers of 10 MHz channel bandwidth when carrier centre frequency (Fc) is Fc = 910 MHz with an uplink transmission bandwidth less than or equal to 32 RB with RB<sub>start</sub> > 3.
- NOTE 13: Void.
- NOTE 14: This requirement is applicable for 5 and 10 MHz E-UTRA or NR channel bandwidth allocated within 718-728MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RB<sub>start</sub> > 1 and RB<sub>start</sub> < 48.
- NOTE 15: Void
- NOTE 16: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 17: This requirement is applicable in the case of a 10 MHz E-UTRA or NR carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.
- NOTE 18: This requirement is only applicable for E-UTRA carriers with bandwidth confined within 1885 1920 MHz (requirement for carriers with at least 1RB confined within 1880 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for E-UTRA carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1892.5 1894.5 MHz and for E-UTRA carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1895 1903 MHz.
- NOTE 19: Void.
- NOTE 20: Void.
- NOTE 21: Void.
- NOTE 22: This requirement is applicable for power class 3 UE for any channel bandwidths within the range 2570 2615 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2605.5 2607.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2597 2605 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.

Table 6.5B.3.3.2.3-3: Spurious emission band UE co-existence limits Rel-17

Level (dBm)   Child (dBm)   Child (dBm)   Child (dBm)	EN-DC Configuration		Spur	ious	s emission			
11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 40, 41, 43, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76  NR Band n79  E-UTRA band 3, 34  Fol. low - Fol. logh -			-	/ ran	. ,	Level		NOTE
E-UTRA band 22, 42, 52   FoL_low   - FoL_high   -50   1	DC_1_n3	11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 40, 41, 43, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76 NR Band n79		-				
NR Band n77, n78				-	_			5
Frequency range		NR Band n77, n78	_	-				2
Frequency range	<u> </u>					_		5, 67
DC_1_n5	<b> </b>	, , ,						5, 7, 16
11, 18, 19, 21, 22, 26, 28, 31, 38, 40, 42, 43, 50, 51, 65, 73, 74  E-UTRA band 3,34  E-UTRA band 41, 52  NR Band n77, n78, n79  E-UTRA band 1, 5, 7, 8, FDL_low - FDL_high -50 1  BC_1_n7 FDL_high -50 1  E-UTRA band 1, 5, 7, 8, FDL_low - FDL_high -50 1  BC_1_n7 FDL_high -50 1  DC_1_n7 FDL_high -50 1  Band n77 FDL_low - FDL_high -50 1  Band n77 FDL_low - FDL_high -50 1  Frequency range 1880 1895 -90 1  Frequency range 1885 1915 -15.5 5 5, FREQuency range 1880 1895 -15.5 5 5, FREQUENCY range 2570 - 2575 +1.6 5 5, FREQUENCY range 2570 - 2575 +1.6 5 5, FREQUENCY range 2570 - 2575 +1.6 5 5 5, FREQUENCY range 2595 - 2620 -40 1  DC_1_n8 E-UTRA band 11, 20, 21, 28, 31, 32, 38, 40, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76  E-UTRA band 1, 8, 34 FDL_low - FDL_high -50 1  E-UTRA band 1, 8, 34 FDL_low - FDL_high -50 1  Frequency range 1880 1895 -90 1  E-UTRA Band 1, 8, 34 FDL_low - FDL_high -50 1  Frequency range 1880 1895 -90 1  E-UTRA Band 1, 8, 34 FDL_low - FDL_high -50 1  Frequency range 1880 1895 -90 1  E-UTRA Band 1, 8, 34 FDL_low - FDL_high -50 1  Frequency range 1880 1895 -90 1  E-UTRA Band 1, 8, 34 FDL_low - FDL_high -50 1  E-UTRA Band 1, 8, 34 FDL_low - FDL_high -50 1  E-UTRA Band 1, 22, 32, 42, 43, 50, 51, 52, 65, 74, 75, 76  NR band n77  NR band n79  E-UTRA Band 1, 22, 32, 42, 43, 50, 51, 52, 65, 74, 75, 76  NR band n79  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  E-UTRA Band 1, 65 FDL_low - FDL_high -50 1  Frequency range -9 662 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694 -962 - 694	DO 4 75							5, 7, 16
E-UTRA band 41, 52   FDL_low   - FDL_high   -50   1	DC_1_n5	11, 18, 19, 21, 22, 26, 28, 31, 38, 40, 42, 43, 50, 51, 65, 73, 74		-				
NR Band n77, n78, n79				-				5
DC_1_n7    20, 22, 26, 27, 28, 31, 32, 40, 42, 43, 50, 51, 52, 65, 67, 72, 74, 75, 76   NR Band n78, n79   band n77		NR Band n77, n78, n79	_				•	2
band 3, 34	DC_1_n7	20, 22, 26, 27, 28, 31,32, 40, 42, 43, 50, 51, 52, 65, 67, 72, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
Frequency range				-				2
Frequency range		band 3, 34		-				5
Frequency range		Frequency range	1880		1895	-40	1	5,16
Frequency range		Frequency range	1895		1915	-15.5		5, 7, 16
Frequency range						+1.6		5, 7, 16
Frequency range		Frequency range		-				5, 6, 7
DC_1_n8		. , ,		_				5, 6, 7
28, 31, 32, 38, 40, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76  E-UTRA band 3, 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79  E-UTRA Band 1, 8, 34 FDL_low - FDL_high -50 1 Frequency range 1880 1895 -40 1 5 Frequency range 1895 1915 -15.5 5 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 5, Frequency range 1915 1920 +1.6 Frequency range 1915 1920 +1.6				-				5, 6
41, 42, 43, 52   NR Band n77, n78, n79   E-UTRA Band 1, 8, 34   F_DL_low   - F_DL_high   -50   1   Frequency range   1880   1895   -40   1   5   5   5   5   5   5   5   5   5	DC_1_n8	28, 31, 32, 38, 40, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76	_	-			1	
E-UTRA Band 1, 8, 34   F <sub>DL_low</sub>   - F <sub>DL_high</sub>   -50   1     Frequency range   1880   1895   -40   1   5     Frequency range   1895   1915   -15.5   5   5     Frequency range   1915   1920   +1.6   5   5     Frequency range   1915   1920   +1.6   5   5     DC_1_n28   E-UTRA Band 5, 7, 8, 18, 19, 20, 26, 27, 31, 38, 40, 41, 72, 73   NR band n79     E-UTRA Band 1, 22, 32, 42, 43, 50, 51, 52, 65, 74, 75, 76   NR band n77, n78     E-UTRA Band 11, 21   F <sub>DL_low</sub>   - F <sub>DL_high</sub>   -50   1     E-UTRA Band 11, 21   F <sub>DL_low</sub>   - F <sub>DL_high</sub>   -50   1     E-UTRA Band 1, 65   F <sub>DL_low</sub>   - F <sub>DL_high</sub>   -50   1     E-UTRA Band 1, 65   F <sub>DL_low</sub>   - F <sub>DL_high</sub>   -50   1     Frequency range   470   - 694   -42   8   5     Frequency range   758   - 773   -32   1     Frequency range   773   - 803   -50   1     Frequency range   662   - 694   -26.2   6		41, 42, 43, 52	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
Frequency range			FDL low	-	F <sub>DI high</sub>	-50	1	5
Frequency range								5, 16
Frequency range		_						5, 7, 16
DC_1_n28		, , ,	1915					5, 7, 16
42, 43, 50, 51, 52, 65, 74, 75, 76 NR band n77, n78  E-UTRA band 3, 34 FDL_low - FDL_high -50 1 E-UTRA Band 11, 21 FDL_low - FDL_high -50 1 E-UTRA Band 1, 65 FDL_low - FDL_high -50 1 Frequency range 470 - 694 -42 8 Frequency range 470 - 710 -26.2 6 Frequency range 758 - 773 -32 1 Frequency range 773 - 803 -50 1 Frequency range 662 - 694 -26.2 6 Frequency range 1880 - 1895 -40 1	DC_1_n28	E-UTRA Band 5, 7, 8, 18, 19, 20, 26, 27, 31, 38, 40, 41, 72, 73 NR band n79	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
E-UTRA Band 11, 21       FDL_low       -       FDL_high       -50       1       9         E-UTRA Band 1, 65       FDL_low       -       FDL_high       -50       1       9         Frequency range       470       -       694       -42       8       8         Frequency range       470       -       710       -26.2       6         Frequency range       758       -       773       -32       1         Frequency range       773       -       803       -50       1         Frequency range       662       -       694       -26.2       6         Frequency range       1880       -       1895       -40       1       3		42, 43, 50, 51, 52, 65, 74, 75, 76 NR band n77, n78		-				2
E-UTRA Band 1, 65       FDL low       -       FDL high       -50       1       9         Frequency range       470       -       694       -42       8       8         Frequency range       470       -       710       -26.2       6         Frequency range       758       -       773       -32       1         Frequency range       773       -       803       -50       1         Frequency range       662       -       694       -26.2       6         Frequency range       1880       -       1895       -40       1       3				-				5
Frequency range       470       -       694       -42       8       8         Frequency range       470       -       710       -26.2       6         Frequency range       758       -       773       -32       1         Frequency range       773       -       803       -50       1         Frequency range       662       -       694       -26.2       6         Frequency range       1880       -       1895       -40       1       3								9, 11
Frequency range       470       -       710       -26.2       6         Frequency range       758       -       773       -32       1         Frequency range       773       -       803       -50       1         Frequency range       662       -       694       -26.2       6         Frequency range       1880       -       1895       -40       1				+ +				9, 10
Frequency range         758         -         773         -32         1           Frequency range         773         -         803         -50         1           Frequency range         662         -         694         -26.2         6           Frequency range         1880         -         1895         -40         1		_ ' ' '		1				5, 17
Frequency range         773         -         803         -50         1           Frequency range         662         -         694         -26.2         6           Frequency range         1880         -         1895         -40         1								14
Frequency range         662         -         694         -26.2         6           Frequency range         1880         -         1895         -40         1		,		-			-	5
Frequency range 1880 - 1895 -40 1				-				5
	}			-			_	5,16
Frequency range   1895   -   1915   -15.5   5   5,		_		-				5, 7, 16
	<u> </u>	. , ,						5, 7, 16

<b>EN-DC Configuration</b>		Spu	rious	emission			
	Protected band	Frequency	y ran	ge (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE
DC_1_n38	E-UTRA Band 1, 3, 5, 8, 20, 22, 27, 28, 31, 32, 34, 40, 42, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
DC_1_n77	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 40, 41, 65, 74	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	1880	-	1895	-40	1	5, 8
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8
	Frequency range	1915	-	1920	+1.6	5	5, 7, 8
DC_1_n78	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 40, 41, 65, 74	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1880	-	1895	-40	1	5, 8
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8
	Frequency range	1915	-	1920	+1.6	5	5, 7, 8
DC_1_n79	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 21, 26, 28, 34, 40, 41, 42, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1880	-	1895	-40	1	5, 8
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8
	Frequency range	1915	-	1920	+1.6	5	5, 7, 8
DC_1_n80	E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 40, 41, 43, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73,74, 75, 76, NR Band n79	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 22, 42, NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n5	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 28, 29, 30, 42, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2, 5
	E-UTRA Band 2, 25, 48	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 41, 43, 53	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n7	E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 26, 27, 28, 29, 30, 42, 50, 51, 66, 74, 85	FDL low	<u>-</u>	FDL high	<u>-50</u>	<u>1</u>	
	E-UTRA Band 43	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	Frequency range	2570	-	2575	1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
DO 0 10	Frequency range	2595	-	2620	-40	11	5, 6
DC_2_n12	E-UTRA Band 5, 13, 14, 17, 24, 26, 27, 30, 41, 50, 53, 71, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 25, 85 NR band n12	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	3
	E-UTRA Band 2	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	11	5
	E-UTRA Band 4, 51, 66, 70, NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_2_n30	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 29, 30, 41, 48, 53, 66, 70, 71, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	NR Band n77	F <sub>DL_low</sub>	-	FDL_high	-50	1	2

EN-DC Configuration		Spui	rious	s emission			
	Protected band	Frequency			Maximum Level (dBm)	MBW (MHz)	NOTE
DC_2_n38	E-UTRA Band 4, 5, 12, 13, 14,17, 27, 28, 29, 30, 42, 50, 51, 66, 74, 85	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 2	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 43	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_2_n41	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 42, 48, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	5
	E-UTRA Band 43, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2A_n48A	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	1	$F_{DL\_high}$	-50	1	
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_2_n66	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 25	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 42, 48, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n71	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 29, 30, 48, 66	$F_{DL\_low}$		$F_{DL\_high}$	-50	1	
	E-UTRA Band 2, 25, 41, 70, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_2_n77	E-UTRA Band 4, 5, 12, 13, 14, 17, 26, 29, 30, 41, 65, 66, 70, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n78	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	1	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_3_n1	E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 40, 41, 43, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76 NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA band 3, 34	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
	E-UTRA band 22, 42, 52 NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1880		1895	-40	1	5,16
	Frequency range	1895		1915	-15.5	5	5, 7, 16
DC_3_n5	Frequency range  E-UTRA Band 1, 5, 7, 8,  11, 18, 19, 21, 26, 28, 31,  38, 40, 43, 50, 51, 65, 73,  74	1915 F <sub>DL_low</sub>	-	1920 F <sub>DL_high</sub>	+1.6 -50	<u>5</u> 1	5, 7, 16
	NR Band n79	_		_	50		_
	E-UTRA band 3,34 E-UTRA Band 22, 42, 52 Band n77, n78	FDL_low FDL_low	-	F <sub>DL_high</sub> F <sub>DL_high</sub>	-50 -50	1	5 2
	Frequency range	1884.5	-	1915.7	-41	0.3	3

<b>EN-DC Configuration</b>				emission			
	Protected band	Frequency	y ran	ge (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE
DC_3_n7	E-UTRA Band 1, 5, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 40, 43, 44, 50, 51, 65, 67, 72, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA band 22, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
DC 0 =0	Frequency range	2595	-	2620	-40	11	5, 6
DC_3_n8	E-UTRA Band 1, 11, 20, 21, 28, 31, 32, 33, 34, 38, 39, 40, 45, 50, 51, 65, 67,68, 69, 72, 73, 74, 75, 76	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA band 3, 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 5 2
	E-UTRA band 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n28	E-UTRA Band 1, 42, 43, 50, 51, 65, 74, 75, 76 NR band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA band 3	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	5
	E-UTRA Band 5, 7, 8, 18, 19, 20, 26, 27, 31, 34, 38, 40, 41, 72	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	11	9, 10
	Frequency range	1884.5	-	1915.7	-41	0.3	13
	Frequency range	470	-	710	-26.2	6	14
	Frequency range	758	-	773	-32	1	5
	Frequency range	773 1884.5	-	803 1915.7	-50	1	2.0
DC_3_n41	Frequency range E-UTRA Band 1, 5, 8, 11, 18, 19, 21, 26, 27, 28, 34, 39, 44, 45, 50, 51, 65, 73, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-41 -50	0.3 1	3, 9
	E-UTRA Band 42, 52 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 40	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-40	1 0.2	2
DC_3_n77	Frequency range E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 39, 40, 41, 65, 74	1884.5 F <sub>DL_low</sub>	-	1915.7 F <sub>DL_high</sub>	-41 -50	0.3 1	3
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n78 DC_3_n80_ULSUP- TDM_n78	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 39, 40, 41, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DO 0 5	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n79	E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 28, 34, 39, 40, 41, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	11	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_4_n78 DC_5_n2	E-UTRA Band 5, 7, 26, 28, 41 E-UTRA Band 4, 5, 12,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50 -50	1	
50_0_112	13, 14, 17, 24, 28, 29, 30, 42, 50, 51, 66, 70, 71, 74, 85						
	E-UTRA Band 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	NR Band n2	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 26	859	-	869	-27	1	

EN-DC Configuration		Spui	rious	emission			
	Protected band	Frequency	/ ran	ge (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE
	E-UTRA Band 41, 43, 53 NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_5_n7	E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 28, 29, 30, 31, 34, 40, 42, 43,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	65, 66, 71, 85 E-UTRA Band 52 NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA band 26	859	-	869	-27	1	
	Frequency range	2570	-	2575	+1.6	5	5, 7, 6
	Frequency range	2575	-	2595	-15.5	5	5, 7, 6
	Frequency range	2595	-	2620	-40	1	5, 14
DC_5_n12	E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 26, 30, 43, 50, 71, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2,
	E-UTRA Bands 4, 41, 42, 48, 51, 66, 70, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 12, 85	F <sub>DL_low</sub>		F <sub>DL_high</sub>	-50	1	5
DC_5_n30	E-UTRA Band 2, 4, 5, 7,12, 13, 14, 17, 24, 25, 26, 29, 30, 38, 48, 66, 70, 71, 85	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 41, 53 NR Band n77	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_5_n66	E-UTRA Band 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 17, 24, 25, 28, 29, 30, 34, 38, 40, 43, 45, 50, 51, 65, 66, 70, 71, 85	FDL_low	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 26	859	-	869	-27	1	
	E-UTRA Band 41, 42, 48, 52, NR Band n77	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_5_n71	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 30, 48, 66, 85	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 2, 25, 41, 70, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 29	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-38	1	5
	E-UTRA Band 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_5_n77	E-UTRA Band 2, 4, 12, 13, 14, 17, 25, 26, 28, 29, 30, 40, 65, 66, 70, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 41	F <sub>DL_low</sub>		$F_{DL\_high}$	-50	1	2
_	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_5_n78	E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 24, 25, 28, 29, 30, 31, 34, 38, 40, 45, 65, 66, 70	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 26	859	-	869	-27	1	0.7
DC_5_n79	E-UTRA Band 41  Bands 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 24, 25, 28, 29, 30, 31, 34, 38, 40, 42, 43, 45, 48, 50, 51, 65, 66, 70, 71, 73, 74, 85	F <sub>DL_low</sub> F <sub>DL_low</sub>	-	F <sub>DL_high</sub> F <sub>DL_high</sub>	-50 -50	1	2, 7
	E-UTRA Band 26	859	-	869	-27	11	
	Bands 41, 52	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2

EN-DC Configuration		Spur	ious	s emission			
	Protected band	Frequency			Maximum Level (dBm)	MBW (MHz)	NOTE
DC_7_n1	Band 1, 5, 7, 8, 20, 22, 26, 27, 28, 31,32, 40, 42, 43, 50, 51, 52, 65, 67, 72, 74, 75, 76, n78,n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	band 3, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	<u>'</u> 1	5
	Frequency range	1880		1895	-40	1	5,16
	Frequency range	1895		1915	-15.5	5	5, 7,16
	Frequency range	1915		1920	+1.6	5	5, 7,16
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n2	E-UTRA Band 4, 5, 7, 10, 12, 13, 14, 17, 26, 27, 28, 29, 30, 42, 50, 51, 66, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	,
	E-UTRA Band 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA band 2	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	Frequency range	2570	-	2575	1.6	5	5, 6, 7
	Frequency range	2575	1	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	11	5, 6
DC_7_n3	E-UTRA Band 1, 5, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA band 22, 42, 52 NR band n78, n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
DC_7_n5	Frequency range E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 22, 26, 28, 29, 30, 31, 40, 42,	2595 F <sub>DL_low</sub>	-	2620 F <sub>DL_high</sub>	-40 -50	1	5, 6
	43, 50, 51, 65, 66, 74, 85 E-UTRA Band 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR Band n77, n78	0570		0575	4.0		5 7 0
	Frequency range	2570	-	2575	+1.6	5	5, 7, 6
	Frequency range	2575 2595	-	2595 2620	-15.5 -40	5	5, 7, 6 5, 14
DC_7_n8	Frequency range E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 40, 50, 51, 65, 67, 68, 72, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5, 14
	E-UTRA band 3, 7, 22, 42, 43, 52 NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
DO 7 00	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n28	E-UTRA Band 2, 3, 5, 7, 8, 20, 26, 27, 31, 34, 40, 72	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 1, 4, 42, 43, 50, 51, 65, 66, 74, 75, 76 NR band n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	_	803	-50	1	
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7

EN-DC Configuration		Spui	rious	s emission			
<b>3</b>	Protected band	Frequency			Maximum Level (dBm)	MBW (MHz)	NOTE
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n66	E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 26, 27, 28, 29, 30, 43, 50, 51, 66, 74, 85	F <sub>DL_low</sub>	-	FDL_high	-50	1	,
	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	2570	+-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n71	E-UTRA Band 4, 5, 12, 13, 14, 17, 26, 30, 66, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 70	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 29	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-38	1	5
	Frequency range	2570	-	2575	1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n77	E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 33, 34, 40, 50, 51, 65, 66, 67, 68, 72, 74, 75, 76	FDL_low	1	F <sub>DL_high</sub>	-50	1	
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n78	E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 33, 34, 40, 50, 51, 65, 66, 67, 68, 72, 74, 75, 76	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	Frequency range	2570	1	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_7_n80	E-UTRA Band 1, 5, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76. NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 3	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	11	5 2
	E-UTRA Band 22, 42, NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
DC_8_n1	Frequency range E-UTRA Band 20, 28, 31, 32, 38, 40, 50, 51, 65, 67, 72, 73, 74, 75, 76	2595 F <sub>DL_low</sub>	-	2620 F <sub>DL_high</sub>	-40 -50	1	5, 6
	E-UTRA band 3, 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1, 8, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	12
	Frequency range	860		890	-40	1	5, 12
	Frequency range	1880		1895	-40	1	5, 16
	Frequency range Frequency range	1895 1915		1915 1920	-15.5 +1.6	5 5	5, 7, 16 5, 7, 16
DC_8_n3	E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA band 3, 8	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2, 5
	E-UTRA band 11, 21	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	12

<b>EN-DC Configuration</b>				s emission			
	Protected band	Frequency	/ ran	ige (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE
	E-UTRA band 7, 22, 41, 42, 43, 52 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3.12
	Frequency range	860	-	890	-40	1	5. 12
DC_8_n20	E-UTRA Band 1, 31, 32,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	0
	33, 34, 40, 50, 51, 65, 67, 68, 72, 74, 75, 76			- 3			
	E-UTRA Band 3, 7, 22, 38, 42, 43, 52, 69 NR band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 8, 20	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	Frequency range	758	-	788	-50	1	
DC_8_n28	E-UTRA Band 20, 31, 34, 38, 40, 72	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA band 3, 7, 22, 41, 42, 43, 50, 51, 65, 73, 74, 75, 76 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 9, 11
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	<del>:</del> 1	5
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10, 12
	Frequency range	470	-	694	-42	8	5, 17
	Frequency range	470	-	710	-26.2	6	14
	Frequency range	662	-	694	-26.2	6	5
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	1	803	-50	1	
	Frequency range	860	-	890	-40	1	5, 12
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9, 12
DC_8_n41	E-UTRA Band 1, 11, 21, 28, 34, 39, 45, 50, 51, 65, 73, 74	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA band 3, 42, 52 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 40	F <sub>DL low</sub>	-	F <sub>DL_high</sub>	-40	1	
	Frequency range	860	-	890	-40	1	5, 12
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_8_n77	E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76	F <sub>DL_low</sub>	•	$F_{DL\_high}$	-50	1	
	E-UTRA band 3, 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	11	2
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	12
	Frequency range	860	-	890	-40	1	5, 12
DC 0 -70	Frequency range	1884.5	-	1915.7	-41 50	0.3	3, 12
DC_8_n78	E-UTRA Band 1, 20, 28, 34, 39, 40, 65, 74	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 3, 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	11	12
	Frequency range	860	-	890	-40	1	5, 12
DC 8V 03V 111 CITE	Frequency range	1884.5	-	1915.7	-41 50	0.3	3, 12
DC_8A_93A_ULSUP- TDM, DC_8A_94A_ULSUP- TDM	E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 45, 50, 51, 52, 65, 67, 68, 69, 72, 73, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50 -50	1	
	E-UTRA band 3, 7, 22, 41, 42, 43 NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 5
	E-UTRA 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
		I DL_IUW	1	i DL_IIIGII	50		

EN-DC Configuration		Spu	rious	emission			
<b>3</b>	Protected band	Frequency			Maximum Level (dBm)	MBW (MHz)	NOTE
DC_11_n77	E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 65	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_11_n78	E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_11_n79	E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 42, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_12_n2	E-UTRA Band 5, 13, 14, 17, 24, 26, 27, 30, 41, 50, 53, 71, 74	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 12, 25, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	3
	E-UTRA Band 2	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	<u>·</u> 1	5
	E-UTRA Band 4, 51, 66, 70,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR Band n77						
DC_12_n5	E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 26, 30, 43 50, 71, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Bands 4, 41, 42, 48, 51, 66, 70, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 12, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_12_n66	E-UTRA Band 2, 5, 13, 14, 17, 25, 26, 27, 30, 41, 53, 71, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 4, 48, 50, 51, 66, 70 NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 12, 85	F <sub>DL_low</sub>	+ -	F <sub>DL_high</sub>	-50	1	5
DC_12_n7	E-UTRA Band 2, 5, 7, 13, 14, 17, 26, 27, 30, 74	F <sub>DL_low</sub>	-	FDL_high	-50	1	
	E-UTRA Band 4, 50, 51,66 NR Band n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 12, 85	F <sub>DL_low</sub>	+	F <sub>DL_high</sub>	-50	1	5
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_12_n25	E-UTRA Band 5, 13, 14, 17, 24, 26, 27, 30, 41, 53,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	0, 0
	71 E-UTRA Band 4, 48, 66, 70.	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR Band n77 E-UTRA Band 2, 12, 25, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	15
DC_12_n30	E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 26, 27, 30, 41, 48, 53, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 4, 66, 70, NR Band n77	F <sub>DL_low</sub>		F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 12, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5

EN-DC Configuration				emission			
	Protected band	Frequency	y ran		Maximum Level (dBm)	MBW (MHz)	NOTE
DC_12_n41	E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 26, 27, 30, 71, 74	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA band 4, 48, 50, 51, 66, 70	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA band 12, 85	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5
DC_12_n77	E-UTRA Band 2, 5, 7. 13, 17, 24, 25, 26, 27, 30, 41, 53, 70, 71	$F_{DL_{low}}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 4, 66	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA band 12, 85	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	5
DC_12_n78	E-UTRA Band 2, 5, 7. 13, 17, 25, 26, 41, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 4, 66	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	E-UTRA band 12	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_13_n2	E-UTRA Band 4, 5,12,13,17, 26, 29, 41, 48, 66, 70, 71	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 2,14, 25	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
	E-UTRA Band 30	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
DC_13_n5	E-UTRA Band 2, 4, 5, 12, 13, 17, 25, 29, 48, 50, 51, 66, 70, 71, 85	$F_{DL_{low}}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 26	859	-	869	-27	1	
	E-UTRA Band 24, 30, 41, 53	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 14	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	5
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
DC_13_n7	E-UTRA Band 2, 4, 5, 7, 12, 13, 17,25, 26, 27, 29, 50, 51, 66, 74, 85 NR Band n78	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 30	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 14	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
	Frequency range	2570	-	2575	+1.6	5	5, 6,
	Frequency range	2575	-	2595	-15.5	5	5, 6,
	Frequency range	2595	-	2620	-40	1	5, 6
DC_13_n48	E-UTRA Band 2, 4, 5, 12, 13, 17, 25, 26, 27, 29, 41, 50, 51, 66, 70, 71, 74, 85	$F_{DL_{low}}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 14	F <sub>DL_low</sub>	<u> </u>	$F_{DL\_high}$	-50	1	5
	E-UTRA Band 24, 30	F <sub>DL_low</sub>	- <u> </u>	$F_{DL\_high}$	-50	1	2
	Frequency range	769	<u> </u>	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
DC_13_n66	E-UTRA Band 2, 4, 5, 12, 13, 17, 25, 26, 27, 29, 41, 50, 51, 53, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 14	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 30, 48, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	803	-35	0.00625	5
DC_13_n71	E-UTRA Band 4, 5, 12, 13, 17, 26, 48, 66, 85	F <sub>DL_low</sub>	-	$F_{DL\_high}$	<u>-50</u>	<u>1</u>	

<b>EN-DC Configuration</b>	Don't stall 1			emission		BED144	No
	Protected band	Frequenc	y ran	ge (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE
	E-UTRA Band 2, 24, 25, 30, 41, 70, NR Band n77	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 29	F <sub>DL_low</sub>	-	$F_DL\_high$	-38	1	5
	E-UTRA Band 14, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
DC_13_n77	E-UTRA Band 2, 4, 5, 10, 12, 13, 17, 25, 26, 29, 41, 66, 70, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 14	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 24, 30	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_14_n2	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 29, 30, 41, 48, 53, 66, 70, 71, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA band 2, 25 NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799		805	-35	0.00625	5
DC_14_n30	E-UTRA Band 2, 4, 5,12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 41, 48, 53, 66, 70, 71, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
DC_14_n77	E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 41, 53, 66, 70, 71, 85	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	769	-	775	-35	0.00625	5
	Frequency range	799	-	805	-35	0.00625	5
DC_14_n66	E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 25, 26, 27, 29, 30, 41, 53, 66, 70, 71, 85	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA band 48 NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	Frequency range	769	-	775	-35	0.00625	5
DO 46 6	Frequency range	799	-	805	-35	0.00625	5
DC_18_n3	E-UTRA Band 1, 3, 11, 18, 19, 21, 28, 34, 40, 65 NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 42 NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_18_n77	E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_18_n78	E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3

EN-DC Configuration	Drotocted band			emission		MBW	NOTE
	Protected band	Frequency	/ ran	ge (WHZ)	Maximum Level (dBm)	(MHz)	NOTE
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_18_n79	E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 42, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n1	E-UTRA Band 1, 11, 21, 28, 40, 42, 65, 74 NR Band n79	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	NR Band n77, n78	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
	Frequency range	945	-	960	-50	1	
	Frequency range	1880	-	1895	-40	1	5, 16
	Frequency range	1895	-	1915	-15.5	5	5, 7, 16
	Frequency range	1915	-	1920	+1.6	5	5, 7, 16
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n77	E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n78	E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n79	E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 42, 65, 74	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_20_n1	E-UTRA Band 1, 3, 7, 8, 20, 22, 31, 32, 34, 40, 43, 50, 51, 65, 67, 68, 72, 75, 76	F <sub>DL_low</sub>	-	FDL_high	-50	1	
	E-UTRA Band 38, 42, 69 NR Band n77, n78	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	Frequency range	758	-	788	-50	1	
DC_20_n3	E-UTRA Band 1, 7, 8, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 72, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 20 E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 22, 38, 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	758	-	788	-50	1	
DC_20_n7	E-UTRA Band 1, 3, 7, 8, 22, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 42, 52 NR band n78, n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 20	F <sub>DL_low</sub>	<b>+</b> -	F <sub>DL_high</sub>	-50	1	5
DC_20_n8	E-UTRA Band 1, 28, 31,	F <sub>DL_low</sub>	1-1	F <sub>DL_high</sub>	-50	1	
	32, 34, 65, 75, 76	· DL_IOW		· DL_IIIGII		•	1

EN-DC Configuration		Spui	rious	s emission			
	Protected band	Frequency			Maximum Level (dBm)	MBW (MHz)	NOTE
	E-UTRA Band 3, 7, 22, 38, 42, 43 NR Band n78	$F_{DLLlow}$	-	F <sub>DL_high</sub>	-50	1	2
DC_20_n38	E-UTRA Band 1, 3, 8, 22, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DO 0000	E-UTRA Band 20	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	11	5
DC_20_n28	E-UTRA Band 3, 7, 8, 31, 34 E-UTRA Band 1, 22, 32,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50 -50	1	2
	38, 42, 43, 65, 75, 76	F <sub>DL_low</sub>	_	$F_{DL\_high}$	-50	ı	2
DC_20_n78	E-UTRA Band 1, 3, 7, 8, 31, 32, 33, 34, 40, 50, 51, 65, 67, 68, 72, 74, 75, 76	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 20	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 38, 69	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_20A_91A_ULSUP- TDM, DC_20A_92A_ULSUP-	E-UTRA Band 1, 3, 7, 8, 22, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
TDM	75, 76 E-UTRA Band 20	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 20 E-UTRA Band 38, 42, 69, NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	758	-	788	-50	1	
DC_21_n1	E-UTRA Band 1, 18, 19, 28, 40, 42, 65 NR Band n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	Frequency range	945	-	960	-50	1	
	Frequency range	1880	-	1895	-40		5, 16
	Frequency range Frequency range	1895 1915	-	1915 1920	-15.5 +1.6	<u>5</u> 5	5, 7, 16 5, 7, 16
	Frequency range	2545	+-	2575	-50	1	3, 7, 10
	Frequency range	2595	-	2645	-50	1	
DC_21_n28	E-UTRA Band 1, 42, 65, NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	11	9, 11
	E-UTRA Band 3, 18, 19, 34, 40 NR Band n79	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	Frequency range	470	-	694	-42	8	5, 17
	Frequency range	470	-	710	-26.2	6	14
	Frequency range	662	-	694	-26.2	6	5
	Frequency range Frequency range	758 773	-	773 803	-32 -50	<u>1</u> 1	5
	Frequency range	945	-	960	-50 -50	<u> </u> 1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9
	Frequency range	2545	-	2575	-50	1	,
DC_21_n77	E-UTRA Band 1, 3, 18, 19, 21, 28, 34, 40, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range Frequency range	1884.5 2545	H	1915.7 2575	-41 -50	0.3	3
	Frequency range	2545	-	2645	-50 -50	<u> </u> 1	
DC_21_n78	E-UTRA Band 1, 3, 18, 19, 21, 28, 34, 40, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	<u> </u>

EN-DC Configuration		Spu	rious	emission			
	Protected band	Frequency			Maximum Level (dBm)	MBW (MHz)	NOTE
DC_21_n79	E-UTRA Band 1, 3, 18, 19, 21, 28, 34, 40, 42, 65	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_25_n41	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 42, 45, 48, 66, 70, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_25_n77	E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 25, 26, 29, 30, 41, 65, 66, 70, 71	$F_{DL_{L}low}$	-	F <sub>DL_high</sub>	-50	1	
DC_26_n41	E-UTRA Band 1, 2, 3, 4, 5, 11, 12, 13, 14, 17, 18, 19, 21, 24, 25, 26, 29, 30, 31, 34, 39, 42, 43, 48, 50, 51, 65, 66, 70, 71, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5		1915.7	-41	0.3	3
	Frequency range	703	-	799	-50	1	
	Frequency range	799	-	803	-40	1	5
	Frequency range	945	-	960	-50	1	
DC_26_n77	E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 65, 74	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 41	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	Frequency range	703	-	799	-50	1	
	Frequency range	799	-	803	-40	11	5
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
DC_26_n78	Frequency range E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 65, 74	2595 F <sub>DL_low</sub>	-	2645 F <sub>DL_high</sub>	-50 -50	1	
	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	703	-	799	-50	1	
	Frequency range	799	-	803	-40	1	5
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
DC_26_n79	Frequency range E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40,	2595 F <sub>DL_low</sub>	-	2645 F <sub>DL_high</sub>	-50 -50	1	
	41, 65, 74 E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	703	<del>  -</del>	799	-50	1	
	Frequency range	799	-	803	-40	1	5
	Frequency range	945	-	960	-50	1	1
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_28_n3	E-UTRA Band 1, 22, 42, 43, 50, 51, 65, 74, 75, 76, NR Band n77, n78	$F_{DL_{L}low}$	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	9, 11
	E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 27, 31, 34, 38, 40, 41, 72, 73 NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	

EN-DC Configuration		Spui	rious	s emission			
-	Protected band	Frequency	/ ran	ge (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	Frequency range	470	-	710	-26.2	6	14
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9
DC_28_n5	E-UTRA Band 2, 3, 5, 7, 8, 14, 18, 19, 24, 25, 26, 28, 30, 31, 34, 38, 40, 70,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		
	71 E-UTRA Band 4, 22, 32, 41, 42, 43, 45, 48, 50, 51, 52, 65, 66, 73, 74, 75, 76 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL</sub> low	-	F <sub>DL_high</sub>	-50	1	2, 9, 11
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	FDL_high	-50	1	2, 9, 10
	Frequency range	1884.5	+-	1915.7	-41	0.3	3, 9
	Frequency range	470	-	694	-42	8	5, 17
	Frequency range	470	-	710	-26.2	6	14
	Frequency range	662	-	694	-26.2	6	5
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-52	1	
	Frequency range	773	<u> </u>	803	-50	1	
DC_28_n7	E-UTRA Band 2, 3, 5, 8, 20, 26, 27, 31, 34, 40, 72 NR band n7	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76 NR band n77, n78	F <sub>DL_low</sub>	1	$F_{DL\_high}$	-50	1	2
	E-UTRA band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 9, 10
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-50	1	
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_28_n41 DC_28_n83_ULSUP- TDM_n41	E-UTRA Band 4, 14, 18, 19, 20, 26, 27, 39, 42, 43, 48, 50, 51, 52, 65, 66, 71, 73  NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 9, 11
	E-UTRA Band 2, 3, 5, 8, 24, 25, 30, 31, 34, 70, 72	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 11, 21, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 9, 10
	E-UTRA Band 40	F <sub>DL_low</sub>	+-	F <sub>DL_high</sub>	-40	1	F 4-
	Frequency range	470	<b>├</b>	694	-42	8	5, 17
	Frequency range	470	<b>├</b>	710	-26.2	6	14
	Frequency range	662	<b>├</b> -	694	-26.2	6	5
	Frequency range	758	-	773	-32	1	5
	Frequency range	773	-	803	-50	1	0.0
DC_28_n77	Frequency range E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41	1884.5 F <sub>DL_low</sub>	-	1915.7 F <sub>DL_high</sub>	-41 -50	0.3 1	3, 9
	E-UTRA Band 1, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	FDL_high	-50	1	9, 10
	Frequency range	758	-	773	-32	1	
	Frequency range	773	-	803	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9

	ion				emission			
18, 19, 20, 26, 34, 39, 40, 41   E-UTRA Band 1, 65, 74		Protected band	-	y ran	ge (MHz)		MBW (MHz)	NOTE
E-UTRA Band 11, 21 FDL.low - FDL.high -50 Frequency range 758 - 773 -32 Frequency range 773 - 803 -50 Frequency range 1884.5 - 1915.7 -41  DC_28_n79	18 41	18, 19, 20, 26, 34, 39, 40,	$F_{DL_{low}}$	-	$F_{DL\_high}$		1	
E-UTRA Band 11, 21	E-	UTRA Band 1, 65, 74		-	$F_{DL\_high}$	-50	1	2
Frequency range	E-	UTRA Band 1	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	9, 11
Frequency range	E-	UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
Frequency range	Fre	equency range		-	773	-32	1	
DC_28_n79	Fre	equency range	773	-			1	
19, 34, 39, 40, 41			1884.5	+ +	1915.7		0.3	3, 9
TA	19	, 34, 39, 40, 41					1	
E-UTRA Band 11, 21	74						1	2
Frequency range			_	-			11	9, 11
Frequency range				+ +			1	9, 10
Frequency range				+ + +			11	
DC_30_n2	1			-			1	_
13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 42, 48, 50, 71, 74, 85				-			0.3	3, 9
E-UTRA Band 25	13 29	, 14, 17, 24, 26, 27, 28, , 30, 41, 42, 48, 50, 51,	FDL_low	-	FDL_high	-50	1	
E-UTRA Band 2			F <sub>DL low</sub>	-	F <sub>DL high</sub>	-50	1	5
E-UTRA Band 43, NR Band n77				-		-50	1	5
DC_30_n5	E-	UTRA Band 43,		-		-50	1	2
E-UTRA Band 41, 53 NR Band n77  DC_30_n66  E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 38, 41, 66, 70, 71  E-UTRA Band 2, 4, 5, 7, 12-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 41, 53, 66, 70, 71, 85  E-UTRA Band 1, 5, 8, 20, 27, 28, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76  E-UTRA Band 1, 8, 22, 26, 28, 34, 41, 42, 44, 45, 50, 51, 52, 73, 74  NR Band n77, n78, n79 Frequency range  DC_39_n41  E-UTRA Band 1, 8, 26, 28, 34, 42, 44, 45, 50, 51, 74  NR Band n77, n78, n79 FDL_low	E- 12 29	UTRA Band 2, 4, 5, 7, 13, 14, 17, 24, 25, 26, 30, 38, 48, 66, 70, 71,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
13, 14, 17, 24, 25, 26, 27, 29, 30, 38, 41, 66, 70, 71   E-UTRA Band 48, NR Band n77   E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 41, 53, 66, 70, 71, 85   E-UTRA Band 1, 5, 8, 20, 27, 28, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76   E-UTRA Band 22, 42   FDL_low   - FDL_high   -50	E-	UTRA Band 41, 53	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
NR Band n77	13	, 14, 17, 24, 25, 26, 27,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 41, 53, 66, 70, 71, 85  E-UTRA Band 1, 5, 8, 20, 27, 28, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76  E-UTRA Band 22, 42  FDL_low  - FDL_high  -50  DC_38_n78  DC_39_n40  E-UTRA Band 1, 8, 22, 26, 28, 34, 41, 42, 44, 45, 50, 51, 52, 73, 74  NR Band n77, n78, n79  Frequency range  1805  Frequency range  1805  TRABBOD  -50  Frequency range  1855  DC_39_n41  E-UTRA Band 1, 8, 26, 28, 34, 42, 44, 45, 50, 51, 74  NR Band n77, n78, n79  FDL_low  - FDL_high  -50  FDL_high  -50  FROL_39_n41  FDL_10W  - FDL_high  -50  FDL_high  -50  FDL_high  -50  FDL_high  -50  FDL_high  -50  -50  FDL_high  -50  -50  -50  -50  -50  -50  -50  -5	NF	R Band n77		-			1	2
DC_38_n3  27, 28, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76  E-UTRA Band 22, 42  FDL_low  N/A  DC_39_n40  E-UTRA Band 1, 8, 22, 26, 28, 34, 41, 42, 44, 45, 50, 51, 52, 73, 74  NR Band n77, n78, n79  Frequency range 1805  Frequency range 1805  DC_39_n41  E-UTRA Band 1, 8, 26, 28, 34, 42, 44, 45, 50, 51, 74  NR Band n77, n78, n79  FDL_low  FDL_lo	12   27	, 13, 14, 17, 24, 25, 26, , 29, 30, 41, 53, 66, 70,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
DC_38_n78         N/A           DC_39_n40         E-UTRA Band 1, 8, 22, 26, 28, 34, 41, 42, 44, 45, 50, 51, 52, 73, 74         FDL_low - FDL_high -50           NR Band n77, n78, n79         FDL_low - FDL_high -50           Frequency range 1805         1855 -40           Frequency range 1855         1880 -15.5           DC_39_n41         E-UTRA Band 1, 8, 26, 28, 34, 42, 44, 45, 50, 51, 74         FDL_low - FDL_high -50           NR Band n77, n78, n79         FDL_low - FDL_high -50           E-UTRA Band 40         FDL_low - FDL_high -40	27 43	, 28, 31, 32, 33, 34, 40, , 50, 51, 65, 67, 68, 72,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_38_n78         N/A           DC_39_n40         E-UTRA Band 1, 8, 22, 26, 28, 34, 41, 42, 44, 45, 50, 51, 52, 73, 74         FDL_low - FDL_high -50           NR Band n77, n78, n79         FDL_low - FDL_high -50           Frequency range         1805         1855 -40           Frequency range         1855         1880 -15.5           DC_39_n41         E-UTRA Band 1, 8, 26, 28, 34, 42, 44, 45, 50, 51, 74         FDL_low - FDL_high -50           NR Band n77, n78, n79         FDL_low - FDL_high -40			F <sub>DL_low</sub>			-50	1	2
26, 28, 34, 41, 42, 44, 45, 50, 51, 52, 73, 74  NR Band n77, n78, n79  Frequency range  1805  Frequency range  1855  1880  -15.5  DC_39_n41  E-UTRA Band 1, 8, 26, 28, 34, 42, 44, 45, 50, 51, 74  NR Band n77, n78, n79  FDL_low  FDL_low  FDL_high  -50  FDL_high  -50  FDL_high  -50  FDL_high  -50  FDL_high  -50  FDL_high  -50		<del></del>		N	I/A			
Frequency range 1805 1855 -40 Frequency range 1855 1880 -15.5  DC_39_n41  E-UTRA Band 1, 8, 26, 28, 34, 42, 44, 45, 50, 51, 74  NR Band n77, n78, n79 FDL_low - FDL_high -50 E-UTRA Band 40  FDL_low - FDL_high -40	26 50	, 28, 34, 41, 42, 44, 45, , 51, 52, 73, 74	F <sub>DL_low</sub>	-		-50	1	
Frequency range 1855 1880 -15.5  DC_39_n41				-			1	2
DC_39_n41				+			1	18
28, 34, 42, 44, 45, 50, 51, 74  NR Band n77, n78, n79  FDL_low - FDL_high -50  E-UTRA Band 40  FDL_low - FDL_high -40			_	+	_		5	5, 7, 1
E-UTRA Band 40 FDL_low - FDL_high -40	28	, 34, 42, 44, 45, 50, 51,	FDL_low	-	►DL_high	-50	1	
E-UTRA Band 40 FDL_low - FDL_high -40	NF	R Band n77, n78, n79	F <sub>DL_low</sub>	<u> </u>	F <sub>DL_high</sub>	-50	1	2
				-		-40	1	
	<del></del>			<u> </u>			1	5
Frequency range 1855 - 1880 -15.5			1855		1880	-15.5	5	5, 7, 1
DC_39_n79	E-	UTRA Band 1, 8, 28,	-	-	F <sub>DL_high</sub>		1	

EN-DC Configuration				emission			
	Protected band	Frequency	/ ran	ge (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE
	Frequency range	1855	-	1880	-15.5	5	18
DC_40_n1	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 22, 26, 27, 28, 31, 32, 38, 41, 42, 43, 44, 45, 50, 51, 52,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
50_10_111	65, 67, 68, 69, 72, 73, 74, 75, 76 NR Band n78	_					
	E-UTRA Band 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	NR Band n77, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_40_n41	Bands 1, 3, 5, 8, 11, 18, 19, 21, 26, 27, 28, 34, 39, 42, 44, 45, 50, 51, 65, 73, 74, NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_40_n78	E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 33, 34, 38, 39, 41, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	NR Band n79	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_40_n79	Bands 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 41, 42, 65, 74 NR band n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_41_n28	E-UTRA Band 4, 14, 18, 19, 20, 26, 27, 39, 42, 43, 48, 50, 51, 52, 65, 66, 71, 73 NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	E-UTRA Band 2, 3, 5, 8, 24, 25, 30, 31, 34, 70, 72	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 11, 21, 74, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 10
	E-UTRA Band 40	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-40	1	
	Frequency range	470	-	694	-42	8	5, 17
	Frequency range	470	-	710	-26.2	6	14
	Frequency range	662	-	694	-26.2	6	5
	Frequency range	758	-	773	-32 50	1	5
	Frequency range	773	-	803	-50	1	2.0
DC 44 x77	Frequency range	1884.5	-	1915.7	-41 50	0.3	3, 9
DC_41_n77	E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 33, 34, 39, 44, 45, 73, 74	F <sub>DL_low</sub>		F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 40	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-40	1	2
DC 41 570	Frequency range	1884.5	$\vdash$	1915.7	-41 50	0.3	3
DC_41_n78	E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 44, 45, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 40	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-40	1	
DO 44 70	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_41_n79	E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 42, 44, 45, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 40	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-40	1	ļ
	Frequency range	1884.5	-	1915.7	-41	0.3	3

EN-DC Configuration							
	Protected band	Frequency		s emission ige (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE
DC_42_n1	E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 40, 41, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76, NR Band n79	FDL_low	-	F <sub>DL_high</sub>	-50	1	_
	E-UTRA Band 3, 34	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	Frequency range	1880	-	1895	-40		5, 16
	Frequency range	1895 1915	-	1915 1920	-15.5	<u>5</u> 5	5, 7, 16
DC_42_n3	Frequency range E-UTRA Band 1, 5, 7, 8,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	+1.6 -50	<u> </u>	5, 7, 16
DO_42_110	11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 33, 34, 38, 40, 41, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76 NR Band n79					'	
	E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC 40 77	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_42_n77 DC_42_n78				<u>√A</u> √A			
DC_42_n78 DC_42_n79				V/A V/A			
DC_48_n5	E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DO 40 = 40	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_48_n12	E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 26, 30, 41, 71, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 4, 50, 51, 66, 70	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DO 40 = 00	E-UTRA Band 12, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_48_n66	E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_48_n71	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 30, 50, 51, 53, 66, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	_
	E-UTRA Band 2, 25, 41, 70	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 29	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-38	1	5
DC 40 77	E-UTRA Band 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_48_n77 DC_66_n2	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 50, 51, 53, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	√A F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 2	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 22, 42, 43, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_66_n5	E-UTRA Band 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 17, 24, 25, 26, 28, 29, 30, 34, 38, 40, 43, 45, 50, 51, 65, 66, 70, 71, 85	FDL_low	-	$F_{DL_{\!-}high}$	-50	1	
	E-UTRA Band 41, 42, 48, 52, NR Band n77	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2

DC_66_n7							
	Protected band	Frequenc	y ran		Maximum Level (dBm)	MBW (MHz)	NOTE
	E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 26, 27, 28, 29, 30, 43, 50, 51, 66, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 42	F <sub>DL_low</sub>	-	FDL_high	-50	1	2
	Frequency range	2570	-	2575	+1.6	5	5, 6, 7
	Frequency range	2575	-	2595	-15.5	5	5, 6, 7
	Frequency range	2595	-	2620	-40	1	5, 6
DC_66_n12	E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 26, 27, 30, 41, 50, 53, 70, 71, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 4, 51, 66, 48, NR Band n77	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 12, 85	F <sub>DL_low</sub>	-	FDL_high	-50	1	5
DC_66_n25	E-UTRA Band 4, 5, 7, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 38, 41, 50, 51, 53, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 42, 48, NR Band n77	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 2	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 43	F <sub>DL_low</sub>	-	$F_DL\_high$	-50	1	2
DC_66_n30	E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 38, 41, 53, 66, 70, 71, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 48, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_66_n41	E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 27, 28, 29, 30, 43, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 42, 48, NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_66_n38	EUTRA 2, 4, 5, 12, 13,14,17, 25, 27, 28, 29, 30, 43, 50, 51, 66, 74, 85	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 42	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	Frequency range	2620		2645	-15.5	5	5, 7, 2
	Frequency range	2645	-	2690	-40	1	5, 22
DC_66_n48	E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_66_n71	E-UTRA Band 4, 5, 13, 14, 17, 24, 26, 27, 29, 30, 43,-50, 51, 66, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 2, 7, 22, 25, 41, 42, 48, 70, NR Band n77	$F_{DL_{Llow}}$	-	$F_{DL\_high}$	-50	1	2
DO 22 ==	E-UTRA Band 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_66_n77	E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 26, 29, 30, 41, 65, 66, 70, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_66_n78	E-UTRA Band 1, 3, 5, 7, 8, 20, 26, 28, 34, 39, 40, 41, 65	$F_{DL\_low}$	_	$F_{DL\_high}$	-50	1	
DC_71_n2	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 30, 48, 66	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	

EN-DC Configuration	Spurious emission Protected band Frequency range (MHz) Maximum MBW NOTE											
-	Protected band	Frequency	/ ran	ige (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE					
	E-UTRA Band 25, 41, 70, NR Band n2, n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2					
	E-UTRA band 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5					
	E-UTRA Band 29	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-38	1	5					
DC_71_n38	E-UTRA Band 4, 5, 12, 13, 14, 17, 30, 66, 85	F <sub>DL_low</sub>	1	$F_{DL\_high}$	-50	1						
	E-UTRA Band 2	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2					
	E-UTRA band 29	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5					
DC_71_n41	E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 30, 48, 66, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1						
	E-UTRA band 2, 25, 70	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2					
	E-UTRA band 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5					
	E-UTRA Band 29	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-38	1	5					
DC_71_n66	E-UTRA Band 4, 5, 13, 14, 17, 24, 26, 27, 29, 30, 43, 50, 51, 66, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1						
	E-UTRA Band 2, 7, 22, 25, 41, 42, 48, 70, NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2					
	E-UTRA Band 71	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5					

- NOTE 1: F<sub>DL\_low</sub> and F<sub>DL\_high</sub> refer to each frequency band specified in Table 5.5-1 in TS 36.101 [4] or in Table 5.2-1 in TS 38.101-1 [2].
- NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 in TS 36.101 [4] and Table 6.5.3.1-2 in TS 38.101-1 [2] are permitted for each assigned carrier used in the measurement due to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2 MHz + N x Lcre x 180 kHz), where N is 2, 3, 4, 5 for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.
- NOTE 3: Applicable when co-existence with PHS system operating in 1884.5 1915.7 MHz
- NOTE 4: Void
- NOTE 5: These requirements also apply for the frequency ranges that are less than F<sub>OOB</sub> (MHz) in Table 6.6.3.1-1, Table 6.6.3.1A-1 in TS 36.101 [4] or in Table 6.5.3.1-1 in TS 38.101-1 [2] from the edge of the channel bandwidth
- NOTE 6: This requirement is applicable for any channel bandwidths within the range 2500 2570 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2560.5 2562.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2552 2560 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 7: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.
- NOTE 8: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink
- NOTE 9: Applicable when the assigned E-UTRA or NR carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz.
- NOTE 10: As exceptions, measurements with a level up to the applicable requirement of -38 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 2<sup>nd</sup> harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 2nd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 11: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 3<sup>rd</sup> harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 3<sup>rd</sup> harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 12: This requirement is applicable only for the following cases: A: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 902.5 MHz ≤ Fc < 907.5 MHz with an uplink transmission bandwidth less than or equal to 20 RB; B: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 907.5 MHz ≤ Fc ≤ 912.5 MHz without any restriction on uplink transmission bandwidth; C: for carriers of 10 MHz channel bandwidth when carrier centre frequency (Fc) is Fc = 910 MHz with an uplink transmission bandwidth less than or equal to 32 RB with RB<sub>start</sub> > 3.
- NOTE 13: Voice
- NOTE 14: This requirement is applicable for 5 and 10 MHz E-UTRA or NR channel bandwidth allocated within 718-728MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RB<sub>start</sub> > 1 and RB<sub>start</sub> < 48.
- NOTE 15: Void
- NOTE 16: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 17: This requirement is applicable in the case of a 10 MHz E-UTRA or NR carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.
- NOTE 18: This requirement is only applicable for E-UTRA carriers with bandwidth confined within 1885 1920 MHz (requirement for carriers with at least 1RB confined within 1880 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for E-UTRA carriers of 15 MHz bandwidth when carrier center frequency is within the range 1892.5 1894.5 MHz and for E-UTRA carriers of 20 MHz bandwidth when carrier center frequency is within the range 1895 1903 MHz.
- NOTE 19: Void
- NOTE 20: Void.
- NOTE 21: Void
- NOTE 22: This requirement is applicable for power class 3 UE for any channel bandwidths within the range 2570 2615 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2605.5 2607.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2597 2605 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.

NOTE: To simplify the above Table, E-UTRA band numbers are listed for bands which are specified only for E-UTRA operation or both E-UTRA and NR operation. NR band numbers are listed for bands which are specified only for NR operation.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.3.2.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

6.5B.3.3.2.4 Test description

6.5B.3.3.2.4.1 Initial conditions

Same initial conditions as described in clause 6.5B.3.1.2.4.1 with the following exceptions:

Instead of Table 6.5B.3.1.2.4.1-1 --> use Table 6.5B.3.3.2.4.1-1.

Table 6.5B.3.3.2.4.1-1: Test Configuration Table

						Initial C	onditions				
	st Enviro						Normal				
Tes	st Freque	in TS 38. encies in TS 38.						quencies refe	r to "Range" co	olumns.	
TS		channel t 11] clause					Refer to "N	R N <sub>RB</sub> "and "E	-UTRA N <sub>RB</sub> " c	olumns	
Tes	st SCS foole 5.3.5-	or the NR o	cell as sp	ecified in	TS 38.521	l-1 [8 <u>]</u>	Lowest SC	S per Channe	l Bandwidth		
					Test Par	ameters fo	or DC Config	urations			
		DC	Configu	uration / I	N <sub>RB_agg</sub>		DL Alle	ocation	UL Allo	cation (Not	e 1,2)
ID		DC Confi	guration	n	E-	NR	CC MOD	E-UTRA &	CC MOD	E-UTR	A & NR
	E-U	JTRA		NR	UTRA Ch	Ch BW/N <sub>RB</sub>	E- UTRA/NR	NR RB	E- UTRA/NR		ations
	Band	Range	Band	Range	BW/N <sub>RB</sub>	DVV/INRB	UIKA/NK	allocation	UIKA/NK	(LCRB @	RB <sub>start</sub> )
	I			Defau	It Test Se	ttings for a	DC_XA_nY	A Configurat	tion	I.	
1	Х	Low	nY	Low	Highest Ch BW /Highest N <sub>RB</sub>	Highest Ch BW /Highest N <sub>RB</sub>	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	х	High	nY	High	Highest Ch BW /Highest N <sub>RB</sub>	Highest Ch BW	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@RB <sub>max</sub>	1@RB <sub>ma</sub>
	I		1	,			1A_n3A Cor	figuration		<u>I</u>	I
1						30/160	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	1	High	n3	Mid	10/50	30/160	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@0
	•				Test Setti	ng for DC_	1A_n5A Cor	figuration			
1	1	Low	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	1	High	n5	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
				,	Test Settii	ng for DC_	1A_n7A Cor	nfiguration			
1	1	High	n7	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@0
2	1	High	n7	Mid	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@14
					Test Settii	ng for DC_	1A_n8A Cor	nfiguration			
1	1	Low	n8	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
				1	Test Settin	g for DC_1	IA_n28A Co	nfiguration			
1	1	Low	n28	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	1	Low	n28	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
3	1	High	n28	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
					Test Settin	g for DC_1	1A_n77A Co	nfiguration			

					1		1		1		
							QPSK/CP		QPSK /		
1	1	High	n77	High	10/50	100/273	-OFDM	NA	CP-OFDM	1@49	1@0
							QPSK		QPSK		
							QPSK/CP		QPSK /		
2	1	Low	n77	Mid	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
							QPSK		QPSK		
							QPSK/CP		QPSK /		
3	1	Low	n77	Low	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
	•				. 0, 00		QPSK		QPSK		. 0
							QPSK/CP		QPSK /		
4	1	Low	n77	NOTE	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
1 7	'	LOW	11177	18	10/30	100/2/3	QPSK	INA	QPSK	160	1 60
							QPSK/CP		QPSK /		
_		1	77	NOTE	40/50	400/070		NIA		4.00	4.00
5	1	Low	n77	18	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
				NOTE	_	_	QPSK/CP		QPSK /	_	_
6	1	Low	n77	18	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				10			QPSK		QPSK		
				NOTE			QPSK/CP		QPSK /		
7	1	Low	n77	18	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				10			QPSK		QPSK		
				NOTE			QPSK/CP		QPSK /		
8	1	Low	n77	NOTE	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
	•			18	,		QPSK		QPSK		
			1	T	est Settin	a for DC 1	IA_n78A Co	nfiguration			I
		1			50. 00ttill	g . J. DO_	QPSK/CP		QPSK /		1
	4	l li ada	-70	مانه ال	20/400	400/070		NIA		1@00	4@070
1	1	High	n78	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
-							QPSK		QPSK		
	_						QPSK/CP		QPSK /		
2	1	Low	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
							QPSK		QPSK		
							QPSK/CP		QPSK /		
3	1	Low	n78	Note 8	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
				T	est Settin	g for DC_	IA_n79A Co	nfiguration			
							QPSK/CP		QPSK /		
1 1	1	Low	n79	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@172
	•		•		_0,.00		QPSK		QPSK		
							QPSK/CP		QPSK /		
2	1	High	n79	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
-	•	i ligii	0	IVIIG	20/100	100/2/0	QPSK	147 (	QPSK	1 @ 00	100
							QPSK/CP		QPSK /		
2	4	Lliab	n70	Lliab	20/100	100/273	-OFDM	NA	CP-OFDM	1@00	1@0
3	1	High	n79	High	20/100	100/2/3		INA		1@99	1@0
-							QPSK		QPSK		1
	_	l .			00/400	400/076	QPSK/CP	<b>.</b>	QPSK /	4.00	4.0004
4	1	Low	n79	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@201
							QPSK		QPSK		
							QPSK/CP		QPSK /		
5	1	High	n79	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
							QPSK		QPSK		
				T	est Settin	g for DC_2	2A_n41A Co	nfiguration			
1	2	Low	n41	Low	20/100	100/273	QPSK/CP	NA	QPSK /	1@0	1@272
'	_		''''		_3,100	100,210	-OFDM	'*'	CP-OFDM	. 😅 🗸	. 52,72
							QPSK		QPSK		
2	2	Lave	n 1 1	Lliak	20/400	100/070	QPSK/CP	NA	QPSK /	1@0	1@20
4	_	Low	n41	High	20/100	100/273		INA		160	1@30
							-OFDM		CP-OFDM		
	0	1	r 1 4	L II au I-	20/400	100/070	QPSK	N I A	QPSK	1.00	1.000
3	2	Low	n41	High	20/100	100/273	QPSK/CP	NA	QPSK /	1@0	1@62
							-OFDM		CP-OFDM		
				<u> </u>			QPSK		QPSK		<b></b>
4	2	Low	n41	Low	20/100	100/273	QPSK/CP	NA	QPSK /	1@0	1@209
							-OFDM		CP-OFDM		
							QPSK		QPSK		
5	2	High	n41	High	20/100	100/273	QPSK/CP	NA	QPSK /	1@99	1@272
							-OFDM		CP-OFDM		
			<u> </u>				QPSK		QPSK		

6	2	Low	n41	Low	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
							QPSK		QPSK		
				٦	Test Settin	g for DC_2	A_n66A Co	nfiguration			
1	2	Low	n66	Low	20/100	40/216	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	2	High	n66	High	20/100	40/216	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@215
3	2	High	n66	Low	20/100	40/216	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@0
4	2	High	n66	Low	20/100	40/216	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
5	2	High	n66	High	20/100	40/216	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@215
				7	Test Settin	g for DC_2	2A_n71A Coi	nfiguration			
1	2	Low	n71	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
			u.	7	Test Settin	g for DC_2	2A_n77A Coi	nfiguration			
							QPSK/CP	<b>J</b>	QPSK /		
1	2	Low	n77	Mid	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@272
2	2	High	n77	Note 27	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@200
3	2	Hlgh	n77	Note 27	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@272
				7	Test Settin	g for DC_2	2A_n78A Coi	nfiguration			
1	2	Low	n78	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
2	2	Low	n78	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@0
3	2	High	n78	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@272
4	2	Low	n78	High	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
L					Test Settin	gs for DC_	_3A_n1A Coi	nfiguration			
1	3	Low	n1	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	3	Low	n1	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
					Test Settir	ng for DC_	3A_n5A Con	figuration			
1	3	Low	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@77
2	3	High	n5	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
3	3	Low	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@0

											•
4	3	Low	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
5	3	High	n5	Low	20/100	20/106	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@99	1@0
							QPSK		QPSK		
				•	Test Settir	${\sf ng}$ for DC_	3A_n7A Con	nfiguration			
1	3	Low	n7	High	20/100	10/52	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@47	1@51
2	3	Mid	n7	High	20/100	10/52	QPSK QPSK/CP -OFDM	NA	QPSK QPSK / CP-OFDM	1@99	1@51
							QPSK		QPSK		
3	3	Low	n7	Low	20/100	10/52	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@51
4	3	Mid	n7	Low	20/100	10/52	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@99	1@0
5	3	Low	n7	High	20/100	10/52	QPSK QPSK/CP -OFDM	NA	QPSK QPSK / CP-OFDM	1@0	1@51
					T1 0-11	( DO	QPSK	. <b>(</b> ! (!	QPSK		
		1	I	I	lest Settir	ig for DC_	3A_n8A Con	ifiguration	ODCK /		I
1	3	Low	n8	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	<u>1@0</u>	1@0
2	3	High	n8	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
3	3	Low	n8	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	<u>1@0</u>	1@105
				Т	est Setting	ns for DC	3A_n28A Co	nfiguration	Qror		
				·			QPSK/CP	ga.ao	QPSK /		
1	3	Low	n28	Low	20/100	20/106	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
2	3	Low	n28	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@105
3	3	High	n28	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
				Т	est Settino	as for DC	3A_n41A Co	nfiguration	QI OIX		
				<u> </u>		, <u></u>	QPSK/CP	<u> </u>	QPSK /		
1	3	Low	n41	Low	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
2	3	High	n41	High	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@272
3	3	Mid	n41	High	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
4	3	Note 4	n41	High	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@49	1@272
		<u>[</u>	<u> </u>		est Settin	a for DC 1	QPSK BA_n77A Co	nfiguration	QPSK		<u> </u>
		1	l		Joe Jellill	9 101 DO_\	QPSK/CP		QPSK /		1
1	3	Low	n77	NOTE 19	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
2	3	Low	n77	NOTE 19	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
3	3	Low	n77	High	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
ш		1	l	<u> </u>	<u> </u>	l	पा आ		QI SIN		1

		ı		ı		ı		r			
4	3	Low	n77	Mid	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@75
							QPSK		QPSK		
_	0			NOTE	00/400	400/070	QPSK/CP	N.1.0	QPSK /	4.00	4.00
5	3	Low	n77	19	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
							QPSK/CP		QPSK /		
6	3	Low	n77	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
_					00/400	400/070	QPSK/CP		QPSK /	4.0.00	400
7	3	High	n77	Low	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@99	1@0
			<u>I</u>	7	ost Sottin	a for DC 3	BA_n78A Co	nfiguration	QFSN		
		1	1	<u>'</u>	est settin	9 101 00_3	QPSK/CP	Illiguration	QPSK /		1
1	3	High	n78	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
		13					QPSK		QPSK		
							QPSK/CP		QPSK /		_
2	3	High	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
							QPSK QPSK/CP		QPSK /		
3	3	Low	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
	0	LOW	1170	IVIIG	20/100	100/2/0	QPSK	147 (	QPSK	160	16212
				Т	est Setting	s for DC_	3A_n79A Co	nfiguration			
							QPSK/CP		QPSK /		
1	3	High	n79	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@105
							QPSK QPSK/CP		QPSK /		
2	3	High	n79	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
-	0	l ligh	117 5	LOW	20/100	100/2/0	QPSK	147 (	QPSK	1600	16212
							QPSK/CP		QPSK /		
3	3	Low	n79	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
4	3	Lliab	n79	Low	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@99	1@134
4	3	High	1179	LOW	20/100	100/2/3	QPSK	INA	QPSK	1@99	1 6 134
							QPSK/CP		QPSK /		
5	3	Low	n79	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@66
							QPSK		QPSK		
		T	T	1	est Settin	gs for DC_	5A_n2A Co	nfiguration			T
1	5	Low	n2	Low	10/50	20/106	QPSK	NA	QPSK / CP-OFDM	1@0	1@0
1	5	Low	II2	Low	10/50	20/106	QPSK	INA	QPSK	1@0	1@0
									QPSK /		
2	5	High	n2	High	10/50	20/106	QPSK	NA	CP-OFDM	1@49	<u>1@105</u>
									QPSK		
	1	ı	T	Т	est Setting	gs for DC_	5A_n66A Co	nfiguration			1
4	E	المان ماد	200	N 41: -1	10/50	40/040	QPSK/CP	NIA	QPSK /	1 @ 40	1.00
1	5	High	n66	Mid	10/50	40/216	-OFDM QPSK	NA	CP-OFDM QPSK	1@49	1@0
			<del> </del>				QPSK/CP		QPSK /		
2	5	High	n66	High	10/50	40/216	-OFDM	NA	CP-OFDM	1@49	1@215
		_		-			QPSK		QPSK		
_	_	l .		l .	40/50	40/010	QPSK/CP	A I A	QPSK /	4.60	4.6015
3	5	Low	n66	Low	10/50	40/216	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@215
							QPSK/CP		QPSK /		
4	5	High	n66	Low	10/50	40/216	-OFDM	NA	CP-OFDM	1@49	1@0
							QPSK		QPSK		
				1	est Settin	g for DC_5	A_n77A Co	nfiguration			
							QPSK/CP		QPSK /		
1	5	High	n77	Mid	10/50	100/273	-OFDM	NA	CP-OFDM	1@49	1@0
			-				QPSK QPSK/CP		QPSK /		
2	5	Low	n77	Mid	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
-					, .,		QPSK		QPSK		
-											

3   5   Low   n77   Note   28   10/50   100/273   OPBM   NA   OPO-FDM   1@49   1@272   OPBM			1	1		1	1	1	•	1		1
4   5   Low   n77   Note   28   10/50   100/273   OPBM   NA   OPSK   O	3	5	Low	n77		10/50	100/273		NA		1@49	1@272
	4	5	Low	n77		10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
	5	5	Low	n77	Note	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
Test Setting for DC. 74   14   16   10   10   10   10   10   10   10	6	5	Low	n77		10/50	100/273	QPSK/CP -OFDM	NA	QPSK /	1@0	1@272
	7	5	High	n77	High	10/50	100/273	QPSK/CP	NA	QPSK /	1@49	1@272
1   5   Low   n78									4	QPSK		
1   5   Low   n78   High   10/50   100/273   OPBK   OPSK	•	•		7	est Settin	g for DC_		nfiguration	1		T	
2   5   Low   n78	1	5	Low	n78	High	10/50	100/273	-OFDM QPSK	NA	CP-OFDM	1@0	1@272
3   5   Low   n78   Mid   10/50   100/273   OPSM   NA   CP-OPDM   1@0   1@0   1@0   QPSM	2	5	Low	n78	Mid	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
1	3	5	Low	n78	Mid	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
Test Setting for DC_7A_n1A Configuration	4	5	High	n78	High	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@49	1@29
Test Setting for DC_7A_n1A Configuration	5	5	Low	n78	Low	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@272
1							( DO		. fi	QPSK		
1		ī		1		lest Settir	ig for DC_		ifiguration			,
2	1	7	Low	n1	Low	20/100	20/106	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
3   7   Mid   n1   High   20/100   20/106   QPSK/CP   OPSM   NA   QPSK	2	7	Low	n1	High	20/100	20/106	-OFDM	NA	CP-OFDM	1@0	1@105
Test Setting for DC_7A_n3A Configuration	3	7	Mid	n1	High	20/100	20/106	-OFDM	NA	CP-OFDM	1@22	1@105
1						Test Settir	ng for DC		figuration	α. σ. τ		I
1         7         High         n3         Low         20/100         30/160         -OFDM QPSK         NA         CP-OFDM QPSK         1@99         1@77           2         7         Low         n3         Low         20/100         30/160         -OFDM OQPSK         QPSK/CP         QPSK/CP         QPSK           3         7         High         n3         High         20/100         30/160         -OFDM OQPSK         QPSK/CP         QPSK/CP <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td><u> </u></td> <td></td> <td></td> <td>QPSK /</td> <td></td> <td></td>							<u> </u>			QPSK /		
2         7         Low         n3         Low         20/100         30/160         -OFDM QPSK         NA         CP-OFDM QPSK         1@0         1@59           3         7         High         n3         High         20/100         30/160         -OFDM QPSK/CP         QPSK / QPSK / QPSK         QPSK /	1	7	High	n3	Low	20/100	30/160	-OFDM QPSK	NA	CP-OFDM QPSK	1@99	1@77
3         7         High         n3         High         20/100         30/160         -OFDM QPSK         NA         CP-OFDM QPSK         1@99         1@86           4         7         High         n3         Low         10/50         5/25         -OFDM QPSK         NA         CP-OFDM QPSK / QPSK / QPSK / QPSK / QPSK         1@0           5         7         High         n3         Low         20/100         30/160         -OFDM QPSK / QPSK / QPSK / QPSK / QPSK / QPSK / QPSK / QPSK         QPSK/CP QPSK / QPSK / QPSK / QPSK / QPSK / QPSK         1@0         1@66           6         7         Low         n3         Mid         20/100         30/160         -OFDM QPSK / QP	2	7	Low	n3	Low	20/100	30/160	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@59
4         7         High         n3         Low         10/50         5/25         QPSK/CP -OFDM QPSK         QPSK / CP-OFDM QPSK         1@49         1@0           5         7         High         n3         Low         20/100         30/160         QPSK/CP QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK QPSK         1@0         1@66         1@66         QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK	3	7	High	n3	High	20/100	30/160	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@99	1@86
5         7         High         n3         Low         20/100         30/160         QPSK/CP -OFDM QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK	4	7	High	n3	Low	10/50	5/25	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@49	1@0
6         7         Low         n3         Mid         20/100         30/160         QPSK/CP -OFDM QPSK         QPSK / CP-OFDM QPSK         1@0         1@66           Test Setting for DC_7A_n5A Configuration           1         7         High         n5         High         20/100         20/106         OFDM OPSK/CP OFDM OPSK / OPSM OPSM OPSM OPSM OPSM OPSM OPSM OPSM	5	7	High	n3	Low	20/100	30/160	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@99	1@0
Test Setting for DC_7A_n5A Configuration	6	7	Low	n3	Mid	20/100	30/160	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@66
1 7 High n5 High 20/100 20/106 -OFDM NA CP-OFDM 1@99 1@105						Toot Satti	na for DC		figureties	QPSK		
1 7 High n5 High 20/100 20/106 -OFDM NA CP-OFDM 1@99 1@105				1		rest Settir	ig for DC_		iriguration	ODCK /		I
	1	7	High	n5	High	20/100	20/106	-OFDM	NA	CP-OFDM	1@99	1@105

			1		1		ODOK/OD	ı	ODOK /		1
2	7	Low	n5	Low	20/100	20/106	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
	•			10::	207.00	20/100	QPSK		QPSK	. 0	
					Test Settir	ng for DC_	7A_n8A Cor	nfiguration			
							QPSK/CP		QPSK /		
1	7	High	n8	Mid	20/100	20/106	-OFDM	NA	CP-OFDM	<u>1@99</u>	<u>1@0</u>
							QPSK		QPSK		
	_		_				QPSK/CP		QPSK /		
2	7	High	n8	Mid	20/100	20/106	-OFDM	NA	CP-OFDM	<u>1@99</u>	<u>1@10</u> 5
							QPSK/CP		QPSK /		
3	7	Low	n8	Low	20/100	20/106	-OFDM	NA	CP-OFDM	1@0	1@0
3	,	LOW	110	LOW	20/100	20/100	QPSK	INA	QPSK	<u>1@0</u>	100
		1	ı	-	rest Settin	a for DC	7A_n28A Co	nfiguration	Q. 0.1		<u>I</u>
						<u> </u>	QPSK/CP	<u> </u>	QPSK /		
1	7	High	n28	High	20/100	20/106	-OFDM	NA	CP-OFDM	1@99	1@105
				3			QPSK		QPSK		
				7	Test Settin	g for DC_	7A_n66A Co	nfiguration			
							QPSK/CP		QPSK /		
1	7	Low	n66	High	20/100	40/216	-OFDM	NA	CP-OFDM	1@99	1@215
							QPSK		QPSK		
							QPSK/CP		QPSK /		
2	7	Low	n66	High	20/100	40/216	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
3	7	Mid	n66	∐iah	20/100	40/216	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@50	1@215
3	,	IVIIG	1100	High	20/100	40/216	QPSK	INA	QPSK	1@50	1@215
							QPSK/CP		QPSK /		
4	7	Low	n66	High	20/100	40/216	-OFDM	NA	CP-OFDM	1@0	1@215
•	•				207.00	10/2:0	QPSK		QPSK		
							QPSK/CP		QPSK /		
5	7	Mid	n66	Low	20/100	40/216	-OFDM	NA	CP-OFDM	1@99	1@0
							QPSK		QPSK		
_	_						QPSK/CP		QPSK /		
6	7	High	n66	Low	20/100	40/216	-OFDM	NA	CP-OFDM	1@99	1@0
				-	Last Cattin	a for DC .	QPSK	nfimuration	QPSK		
		I	T		est Settin	g for DC_	7A_n78A Co	Iniguration	ODCK /		I
1	7	Low	n78	Low	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
'	,	LOW	1170	LOW	20/100	100/2/3	QPSK	14/1	QPSK	160	1 60
							QPSK/CP		QPSK /		
2	7	Mid	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
							QPSK		QPSK		
							QPSK/CP		QPSK /		
3	7	Low	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@196
							QPSK QPSK/CP		QPSK /		
4	7	Low	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
_	,	LOW	1170	LOW	20/100	100/2/3	QPSK	INA	QPSK	1699	16212
							QPSK/CP		QPSK /		
5	7	High	n78	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@77	1@0
		Ŭ.					QPSK		QPSK		
			1		1		QPSK/CP		QPSK /	_	_
6	7	Mid	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
							QPSK		QPSK /		
7	7	High	n78	Mid	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@272
'	'	riigii	11/0	iviiu	20/100	100/2/3	QPSK	INA	QPSK	160	1 4212
							QPSK/CP		QPSK /		
8	7	High	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
L							QPSK		QPSK		
							QPSK/CP		QPSK /		
9	7	High	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
	<u> </u>		1		]	]	QPSK		QPSK		

1	7	Low	n78	Low	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@165
0	<i>'</i>	LOW	1170	LOW	20/100	100/2/3	QPSK	INA	QPSK	1@0	1@103
				T	est Settin	gs for DC	_8A_n1A Coi	nfiguration			
1	8	Low	n1	Low	10/50	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
		I		T	est Settin	as for DC	8A_n3A Coi	nfiguration	<u> </u>		1
				1			QPSK/CP		QPSK /		
1	8	High	n3	Low	10/50	30/160	-OFDM QPSK	NA	CP-OFDM QPSK	1@49	1@0
2	8	Low	n3	Low	10/50	30/160	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@159
3	8	High	n3	High	10/50	30/160	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@159
		•		T	est Setting	gs for DC_	8A_n20A Co	nfiguration			
					•		QPSK/CP	-	QPSK /		
1	8	High	n20	Low	10/50	20/106	-OFDM QPSK	NA	CP-OFDM QPSK	<u>1@49</u>	1@12
2	8	High	n20	High	10/50	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@105
3	8	Low	n20	Low	10/50	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
-		l .		T	est Setting	ns for DC	8A_n28A Co	nfiguration	<u> </u>		l.
				1	cor octini		QPSK/CP	iniguration	QPSK /		
1	8	High	n28	High	10/50	20/106	-OFDM QPSK	NA	CP-OFDM QPSK	1@49	<u>1@105</u>
2	8	Low	n28	Low	10/50	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	<u>1@0</u>	1@105
		I.	II.	T	est Settino	as for DC	8A_n41A Co	nfiguration			u.
					•	<u> </u>	QPSK/CP	J	QPSK /		
1	8	Low	n41	Mid	10/50	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
2	8	Low	n41	High	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
3	8	Low	n41	Low	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
4	8	High	n41	High	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@272
				T	est Setting	gs for DC_	8A_n77A Co	nfiguration			
							QPSK/CP		QPSK /		
1	8	Low	n77	Note 9	10/50	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
2	8	High	n77	Low	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@37
3	8	High	n77	Mid	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@97
4	8	Low	n77	Mid	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@211
5	8	Low	n77	Note 9	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0

8	High	n77	High	10/50	100/273	QPSK/CP -OFDM OPSK	NA	QPSK / CP-OFDM OPSK	1@49	1@272
8	High	n77	Mid	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@49	1@0
8	Low	n77	Note 9	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
8	High	n77	Low	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@49	1@85
				et Setting	ns for DC		nfiguration	QPSK		
	<u> </u>	I		octuni	J3 101 DO_		iniguration	ODSK /		I
8	High	n78	Mid	10/50	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@49	1@272
8	High	n78	Low	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
8	Low	n78	High	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@49	1@272
8	High	n78	High	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
8	High	n78	High	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@49	1@0
8	Mid	n78	Low	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@25	1@0
	I	ı	Te	st Setting	s for DC_1		onfiguration	3. 3		
11	Low	n77	Note 10	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
11	Low	n77	Low	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
11	Low	n77	Mid	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@63
11	Low	n77	Mid	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@104
11	Low	n77	Note 10	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
11	Low	n77	Note 10	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
11	Low	n77	Note 10	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
11	Low	n77	Low	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@75
11	Low	n77	Note 10	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
11	Low	n77	Note 10	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
			Те	st Setting	s for DC_1		onfiguration			
11	Low	n78	Mid	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@184
	8 8 8 8 8 8 8 8 11 11 11 11 11 11 11	8 High  8 Low  8 High  8 High  8 High  8 High  8 High  8 High  8 High  11 Low  11 Low  11 Low  11 Low  11 Low  11 Low  11 Low  11 Low  11 Low  11 Low	8       High       n77         8       Low       n77         8       High       n78         8       Mid       n78         11       Low       n77         11       Low       n77	8       High       n77       Mid         8       Low       n77       Note 9         8       High       n77       Low         8       High       n78       Mid         8       High       n78       Low         8       Low       n78       High         8       High       n78       High         8       High       n78       High         8       Mid       n78       Low         11       Low       n77       Note         11       Low       n77       Mid         11       Low       n77       Mid         11       Low       n77       Note         10       n77	8       High       n77       Mid       10/50         8       Low       n77       Note 9       10/50         Test Setting         8       High       n78       Mid       10/50         8       High       n78       Low       10/50         8       High       n78       High       10/50         8       Mid       n78       Low       10/50         8       Mid       n78       High       10/50         11       Low       n77       Note       10/50         11       Low       n77       Mid       10/50         11       Low       n77       Mid       10/50         11       Low       n77       Note       10/50	8         High         n77         Mid         10/50         100/273           8         Low         n77         Note 9         10/50         100/273           8         High         n77         Low         10/50         100/273           Test Settings for DC_           8         High         n78         Mid         10/50         100/273           8         High         n78         High         10/50         100/273           8         Mid         n78         Low         10/50         100/273           8         Mid         n78         Low         10/50         100/273           8         Mid         n78         Low         10/50         100/273           11         Low         n77         Note 10         10/50         100/273           11         Low         n77         Note 10         10/50         100/273      <	B	High	High	B

2	11	Low	n78	Low	10/50	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
-			0	2011	10/00	100/2/0	QPSK	107	QPSK	100	160
							QPSK/CP		QPSK /		
3	11	Low	n78	High	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@63
			•		. 0, 00	100,210	QPSK		QPSK		
							QPSK/CP		QPSK /		
4	11	Low	n78	High	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@104
			•	19	. 0, 00		QPSK		QPSK		
							QPSK/CP		QPSK /		
5	11	Low	n78	Note	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				11			QPSK		QPSK		
							QPSK/CP		QPSK /		
6	11	Low	n78	Note	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				11			QPSK		QPSK		
							QPSK/CP		QPSK /		
7	11	Low	n78	Low	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@75
							QPSK		QPSK		
			1	Te	est Setting	s for DC 1	11A_n79A C	onfiguration			l
		1	1	- '		, <u>, , , , ,                           </u>	QPSK/CP		QPSK /		I
1	11	Low	n79	Lliah	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
'	11	Low	1179	High	10/50	100/2/3	QPSK	INA	QPSK	160	1@212
-							QPSK/CP		QPSK /		+
2	4.4	Low	270	Mid	10/50	100/272		NIA		1@0	1@122
2	11	Low	n79	Mid	10/50	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@132
							QPSK/CP		QPSK /		<del>                                     </del>
2	4.4	Lliab	270	Lliab	10/50	100/272		NIA		1@40	1@20
3	11	High	n79	High	10/50	100/273	-OFDM	NA	CP-OFDM	1@49	1@30
							QPSK		QPSK		
1	4.4	1	70	N 4: al	40/50	400/070	QPSK/CP	NIA	QPSK /	4.00	4 @ 070
4	11	Low	n79	Mid	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
				_			QPSK		QPSK		
		1		ı	est Setting	g for DC_1	2A_n66A Co	ntiguration	,		•
					_		QPSK/CP		QPSK /	_	_
1	12	Low	n66	Low	10/50	40/216	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
							QPSK/CP		QPSK /		
2	12	High	n66	High	10/50	40/216	-OFDM	NA	CP-OFDM	1@49	1@215
							QPSK		QPSK		
	4.0				40/50	40/040	QPSK/CP		QPSK /	1010	40045
3	12	Low	n66	High	10/50	40/216	-OFDM	NA	CP-OFDM	1@49	1@215
							QPSK		QPSK		1
				Т	est Setting	g for DC_1	2A_n78A Co	nfiguration			
							QPSK/CP		QPSK /		
1	12	Low	n78	Low	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
						]	QPSK/CP		QPSK /		
2	12	High	n78	Low	10/50	100/273	-OFDM	NA	CP-OFDM	1@49	1@272
							QPSK		QPSK		
						]	QPSK/CP		QPSK /		
3	12	Low	n78	Mid	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@136
			<u> </u>				QPSK		QPSK		
1				1	Test Settin	g for DC_	13A_n2A Co	nfiguration			
							QPSK/CP		QPSK /		
1	13	Low	n2	Low	10/50	20/106	-OFDM	NA	CP-OFDM	1@0	1@0
			-				QPSK	-	QPSK		
		1		т	est Setting	for DC 1	3A_n77A Co	nfiguration			•
		1	1	<u>'</u>		, <u></u>	QPSK/CP		QPSK /		1
1	13	Mid	n77	Note	10/50	100/273	-OFDM	NA	CP-OFDM	1@49	1@272
'	13	IVIIU	'''	29	10/30	100/2/3	QPSK	INA	QPSK	1 649	1 4212
-			1			-					
2	10	N //: ~!	n77	VV:~	10/50	100/272	QPSK/CP	NIA	QPSK /	1@40	1.00
2	13	Mid	n77	Mid	10/50	100/273	-OFDM	NA	CP-OFDM	1@49	1@0
							QPSK QPSK/CP		QPSK /		<del>                                     </del>
3	13	Mid	n77	Note	10/50	100/273	-OFDM	NA	CP-OFDM	1@0	1@210
3	13	IVIIU	'''	29	10/30	100/2/3	QPSK	INA	QPSK	160	1 5 2 10
i l			1	l	]	1	<b>ULOV</b>		<b>ULOV</b>		

A		ODOW/OD ODOW/											
S		12	Low	n77	Note	10/50	100/272		NΙΛ		1@0	1@0	
S	4	13	LOW	1177	29	10/50	100/2/3		INA		1@0	1@0	
S													
Composition   Composition	5	13	Low	n77		10/50	100/273		NA		1@0	1@0	
Columbia   High   N77		.0	2011		29	10/00	100/2/0						
6													
Test Setting for DC_14A_n2A_Configuration	6	13	High	n77	HIGH	10/50	100/273		NA	CP-OFDM	1@49	1@272	
Test Setting for DC_14A_n2A Configuration								QPSK		QPSK			
Test Setting for DC	7	13	Low	n77	LOW	10/50	100/273		NA		1@0	1@0	
1								QPSK		QPSK			
1					7	est Settin	g for DC_1	I4A_n2A Co	nfiguration				
								QPSK/CP		QPSK /			
Test Setting for DC_14A_n66A Configuration	1	14	Low	n2	Low	10/50	20/106		NA		1@0	1@0	
1								QPSK		QPSK			
1					T	est Setting	g for DC_1	4A_n66A Cc	onfiguration				
								QPSK/CP		QPSK /			
Test Setting for DC_18A_n77A Configuration	1	14	Low	n66	Low	10/50	40/216		NA	CP-OFDM	1@0	1@0	
2													
Test Setting for DC_18A_n77A Configuration	2	14	High	n66	High	10/50	40/216		NA		1@49	1@215	
1										QPSK			
1					T	est Setting	g for DC_1		onfiguration				
2   18	1	18	High	n77	Mid	15/75	100/273		NA		1@74	1@272	
18													
1					Note								
18	2	18	Low	n77		15/75	10/52		NA		1@0	1@0	
3													
A	2	10	Low	n77	Note	15/75	100/272		NIA		1.00	1 @ 272	
18	3	10	LOW	1177	31	15/75	100/2/3		INA		1@0	1@272	
18													
S	4	18	High	n77		15/75	100/273		NA		1@74	1@0	
Test Setting for DC_18A_n78A Configuration	•	.0	1.1.9.1		31	10/10	100/2/0						
Test Setting for DC_18A_n78A Configuration					N								
Composition   Composition	5	18	High	n77		15/75	100/273		NA		1@74	1@0	
6         18         High         n77         Low         15/75         100/273         -OFDM QPSK         NA CP-OFDM QPSK         1@74         1@272           7         18         Low         n77         High         10/50         100/273         -OFDM QPSK/CP QPSK/CP QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK/CP-OFDM QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK/CP-OFDM QPSK/CP-OFDM QPSK					31			QPSK					
Test Setting for DC_18A_n78A Configuration													
Test Setting for DC_18A_n78A Configuration	6	18	High	n77	Low	15/75	100/273		NA		1@74	1@272	
Test Setting for DC_18A_n78A Configuration													
Test Setting for DC_18A_n78A Configuration	_	40				40/50	400/070				4.60	4.0070	
Test Setting for DC_18A_n78A Configuration	/	18	Low	n//	High	10/50	100/2/3		NA		1@0	1@272	
1	$\vdash$			I	_	not Cottle	 		mflarradi	UP3K		I	
1         18         High         n78         High         15/75         100/273         -OFDM QPSK         NA CP-OFDM QPSK         1@74         1@272           2         18         Low         n78         Note 32         15/75         10/52         -OFDM QPSK/CP OFDM QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK	<u></u>			1	I.	est Setting	g for DC_1		ontiguration	05011		1	
18		40	1.15		1.151	45/75	400/070		N.I.A		4 @ 7 4	4.0070	
2   18	1	18	High	n/8	High	15/75	100/2/3		NA NA		1@74	1@2/2	
2         18         Low         n78         Note 32         15/75         10/52         -OFDM QPSK         NA         CP-OFDM QPSK         1@0         1@0           3         18         Low         n78         Note 32         15/75         100/273         -OFDM OPSK         NA         CP-OFDM QPSK QPSK         1@0         1@272           4         18         High         n78         Mid         15/75         100/273         -OFDM QPSK/CP QPSK QPSK         QPSK QPSK         QPSK QPSK           5         18         High         n78         Low         15/75         100/273         -OFDM QPSK/CP QPSK QPSK         QPSK QPSK         1@74         1@272           Test Setting for DC_19A_n1A Configuration           1         19         Low         n1         Low         15/75         20/106         QPSK/CP OFDM         NA         QPSK / CP-OFDM         1@0         1@0	$\vdash$			-			-						
32	2	12	LOW	n79		15/75	10/52		NΙΔ		1@0	1@0	
3	_	10	LOW	117 0	32	10/10	10/32		INC.		1 50	1 50	
3													
1   19   Low   11   Low   15/75   20/106   QPSK	3	18	Low	n78		15/75	100/273		NA		1@0	1@272	
4         18         High         n78         Mid         15/75         100/273         QPSK/CP QPSK QPSK QPSK         QPSK QPSK QPSK         1@74         1@165           5         18         High         n78         Low         15/75         100/273         QPSK/CP QPSK         QPSK QPSK         1@74         1@272           Test Setting for DC_19A_n1A Configuration           1         19         Low         n1         Low         15/75         20/106         QPSK/CP OFDM         NA         QPSK / CP-OFDM         1@0         1@0					32								
4         18         High         n78         Mid         15/75         100/273         -OFDM QPSK         NA CP-OFDM QPSK         1@74         1@165           5         18         High         n78         Low         15/75         100/273         -OFDM QPSK/CP QPSK         QPSK / CP-OFDM QPSK         1@74         1@272           Test Setting for DC_19A_n1A Configuration           1         19         Low         n1         Low         15/75         20/106         OFDM OPSK/CP OFDM         NA         CP-OFDM         1@0         1@0								QPSK/CP		QPSK /			
5         18         High         n78         Low         15/75         100/273         QPSK/CP QPSK         QPSK / CP-OFDM QPSK         1@74         1@272           Test Setting for DC_19A_n1A Configuration           1         19         Low         n1         Low         15/75         20/106         QPSK/CP OFDM         QPSK / CP-OFDM         1@0         1@0	4	18	High	n78	Mid	15/75	100/273		NA		1@74	1@165	
5         18         High         n78         Low         15/75         100/273         -OFDM QPSK         NA CP-OFDM QPSK         1@74         1@272           Test Setting for DC_19A_n1A Configuration           1         19         Low         n1         Low         15/75         20/106         -OFDM         NA         CP-OFDM         1@0         1@0													
QPSK   QPSK   QPSK													
Test Setting for DC_19A_n1A Configuration	5	18	High	n78	Low	15/75	100/273		NA		1@74	1@272	
1 19 Low n1 Low 15/75 20/106 -OFDM NA CP-OFDM 1@0 1@0									L	QPSK			
1 19 Low n1 Low 15/75 20/106 -OFDM NA CP-OFDM 1@0 1@0			r			est Settin	g for DC_1		nfiguration			•	
						4	06//				4.0 =		
	1	19	Low	n1	Low	15/75	20/106		NA		1@0	1@0	
								QPSK		QPSK		1	

				Т	est Setting	g for DC_1	9A_n77A Co	nfiguration					
							QPSK/CP		QPSK /				
1	19	Low	n77	Mid	15/75	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@272		
							QPSK/CP		QPSK /				
2	19	Low	n77	Note 26	15/75	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0		
							QPSK/CP		QPSK /				
_	40	ما دا ا	77	N /1: -1	45/75	400/070		NIA		1@71	4.00		
3	19	High	n77	Mid	15/75	100/273	-OFDM	NA	CP-OFDM	1@74	1@0		
							QPSK		QPSK				
				Note			QPSK/CP		QPSK /				
4	19	Low	n77	26	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0		
				20			QPSK		QPSK				
							QPSK/CP		QPSK /				
5	19	Low	n77	Note	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0		
				26	10,70	100,270	QPSK	100	QPSK	. 00	.00		
							QPSK/CP		QPSK /				
	40	1	- 77	1	45/75	100/273	-OFDM	NA	CP-OFDM	4@0	4@070		
6	19	Low	n77	Low	15/75	100/2/3		INA		1@0	1@272		
							QPSK		QPSK				
				Note			QPSK/CP		QPSK /				
7	19	Low	n77	26	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0		
				20			QPSK		QPSK				
				Т	est Setting	for DC 1	9A_n78A Co	nfiguration					
		1		<u> </u>		, <u></u>			ODOK /				
	4.0		70		4 = /= =	400/070	QPSK/CP		QPSK /	4074	4.0.070		
1	19	High	n78	High	15/75	100/273	-OFDM	NA	CP-OFDM	1@74	1@272		
							QPSK		QPSK				
							QPSK/CP		QPSK /				
2	19	Low	n78	Mid	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0		
	QPSK QPSK												
	QPSK/CP QPSK /												
2	3 19 High n78 High 15/75 100/273 -OFDM NA CP-OFDM 1@74 1@0												
3	19	riigii	1170	riigii	13/13	100/2/3	QPSK	INA	QPSK	16/4	160		
							QPSK/CP		QPSK /				
	40	1	70	N 41: -1	45/75	400/070		N I A		4.00	4.0405		
4	19	Low	n78	Mid	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@165		
							QPSK		QPSK				
							QPSK/CP		QPSK /				
5	19	Low	n78	Low	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@272		
							QPSK		QPSK				
				N			QPSK/CP		QPSK /				
6	19	Low	n78	Note	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0		
				17			QPSK		QPSK				
	i	1	1	т	ast Sattine	n for DC 4	9A_n79A Co	nfiguration	,		1		
<u></u>		1	_		esi seiiii)(	ו_טעוטון		miguration			T		
							QPSK/CP		QPSK /				
1	19	Low	n79	Low	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0		
			<u> </u>	<u> </u>			QPSK		QPSK				
		-		7	Test Settin	g for DC 2	20A_n1A Co	nfiguration					
						J · · · · <del>- · _ ·</del>	QPSK/CP	.3	QPSK /				
,	00	1	4	1	20/400	20/400		N I A		1.00	4.00		
1	20	Low	n1	Low	20/100	20/106	-OFDM	NA	CP-OFDM	1@0	1@0		
							QPSK		QPSK				
							QPSK/CP		QPSK /				
2   20   High   n1   High   20/100   20/106   -OFDM   NA   CP-OFDM   1@99   1@105													
							QPSK		QPSK				
				7	Test Settin	g for DC	20A_n3A Co	nfiguration		<u> </u>			
							QPSK/CP	J	QPSK /				
	00	1	^	1	00/400	20/4.22		N I A		4.60	4.60		
1	20	Low	n3	Low	20/100	30/160	-OFDM	NA	CP-OFDM	1@0	1@0		
							QPSK		QPSK				
							QPSK/CP		QPSK /				
2	20	High	n3	High	20/100	30/160	-OFDM	NA	CP-OFDM	1@99	1@159		
							QPSK		QPSK				
							QPSK/CP		QPSK /				
3	20	Low	n3	High	20/100	30/160	-OFDM	NA	CP-OFDM	1@0	1@159		
_	_•				==:		QPSK		QPSK				
	<u> </u>	<u> </u>	1	<u> </u>	Foot Oction				GI OIL		L		
	Test Setting for DC_20A_n7A Configuration												

1	20	High	n7	Low	20/100	20/106	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@99	1@0
							QPSK		QPSK		
2	20	High	n7	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
3	20	Low	n7	Low	20/100	20/106	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
4	20	High	n7	Low	20/100	20/106	QPSK QPSK/CP -OFDM	NA	QPSK QPSK / CP-OFDM	1@0	1@0
		J					QPSK		QPSK		
				1	Test Settin	g for DC_2	20A_n8A Co	nfiguration			
1	20	Low	n8	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	20	High	n8	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
3	20	Low	n8	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	<u>1@0</u>	1@105
				Т	est Setting	for DC_2	0A_n28A Co	nfiguration			•
							QPSK/CP	-	QPSK /		
1	20	Low	n28	Low	20/100	20/106	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@105
				Т	est Setting	for DC_2	0A_n78A Co	nfiguration			_
							QPSK/CP		QPSK /		
1	20	Low	n78	High	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK QPSK /	1@0	1@272
2	20	Low	n78	Mid	20/100	100/273	QPSK/CP -OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
3	20	Low	n78	Mid	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@205
4	20	High	n78	High	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@104
5	20	Low	n78	Note 24	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
				7	Test Settin	g for DC_2	21A_n1A Co	nfiguration			
1	21	Low	n1	Low	15/75	20/106	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
2	21	High	n1	High	15/75	20/106	QPSK QPSK/CP -OFDM QPSK	NA	QPSK / QPSK / CP-OFDM	1@74	1@105
3	21	Low	n1	Low	15/75	20/106	QPSK/CP -OFDM	NA	QPSK QPSK / CP-OFDM	1@0	1@105
			<u>I</u>		oot Cotting	tor DC 3	QPSK	nfiguratio-	QPSK		1
		Ι	1	ı	est setting	J for DC_2	1A_n77A Co	ninguration	ODOK /		1
1	21	Low	n77	Note 21	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	21	Low	n77	Low	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
3	21	Low	n77	Mid	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@174
4	21	Low	n77	Mid	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@215

5	21	High	n77	Mid	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@74	1@0
6	21	Low	n77	Note 21	15/75	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
7	21	Low	n77	Note 21	15/75	100/273	QPSK QPSK/CP -OFDM	NA	QPSK QPSK / CP-OFDM	1@0	1@0
8	21	Low	n77	Low	15/75	100/273	QPSK QPSK/CP -OFDM	NA	QPSK QPSK / CP-OFDM	1@0	1@130
				Note			QPSK QPSK/CP		QPSK QPSK /		
9	21	Low	n77	21	15/75	100/273	-OFDM QPSK QPSK/CP	NA	CP-OFDM QPSK QPSK /	1@0	1@0
0	21	High	n77	High	15/75	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@74	1@0
				T	est Setting	g for DC_2	1A_n78A Co	nfiguration			
1	21	Low	n78	Mid	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
2	21	Low	n78	Low	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
3	21	High	n78	High	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@74	1@272
4	21	Low	n78	High	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@215
5	21	High	n78	High	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@74	1@0
6	21	Low	n78	Note 20	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
7	21	Low	n78	Low	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@130
,				Т	est Setting	for DC 2	1A_n79A Co	nfiguration			
1	21	Low	n79	Mid	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
2	21	Low	n79	Low	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
3	21	Low	n79	High	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@38
4	21	Low	n79	Note 22	15/75	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
		•	•	Т	est Settino	g for DC_2	5A_n41A Co	nfiguration			•
1	25	Low	n41	Low	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@272
2	25	Low	n41	High	20/100	100/273	QPSK QPSK/CP -OFDM QPSK	NA	QPSK QPSK / CP-OFDM QPSK	1@0	1@30
3	25	Low	n41	High	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@62
4	25	Low	n41	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@209

5	25	High	n41	High	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@99	1@272
							QPSK		QPSK		
	0.5				00/400	400/070	QPSK/CP		QPSK /	4.60	4.00
6	25	Low	n41	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				_			QPSK		QPSK		
		1		T	est Setting	g for DC_2	6A_n41A Co	nfiguration		•	
							QPSK/CP		QPSK /		
1	26	High	n41	High	15/75	100/273	-OFDM	NA	CP-OFDM	1@74	1@272
							QPSK		QPSK		
							QPSK/CP		QPSK /		
2	26	Low	n41	Low	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@12
							QPSK		QPSK		
	00	1	44	1	45/75	400/070	QPSK/CP	NI A	QPSK /	4.80	4.6.44
3	26	Low	n41	Low	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@41
							QPSK QPSK/CP		QPSK /		
4	26	Lliah	n41	Low	15/75	100/273	-OFDM	NA	CP-OFDM	1@74	1@0
4	20	High	1141	LOW	15/75	100/2/3	QPSK	INA	QPSK	1@74	160
							QPSK/CP		QPSK /		
5	26	Low	n41	Low	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@232
5	20	LOW	1141	LOW	13/73	100/2/3	QPSK	INA	QPSK	160	1@232
				т.	act Satting	n for DC 2	6A_n77A Co	nfiguration	QI OIX		1
-		I	I		est setting	y 101 DC_2		Iniguration	ODCK /		1
1	26	Low	n77	Mid	15/75	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@272
1	20	Low	n77	IVIIG	15/75	100/2/3	QPSK	INA		1@0	1@272
									QPSK /		
2	26	Low	n77	NOTE	15/75	100/272	QPSK/CP -OFDM	NIA	CP-OFDM	1@0	1.00
-	20	Low	n77	25	15/75	100/273	QPSK	NA	QPSK	1@0	1@0
							QPSK/CP		QPSK /		
3	26	Lliah	n77	Mid	15/75	100/273	-OFDM	NA	CP-OFDM	1@74	1@34
3	20	High	1177	IVIIU	13/73	100/2/3	QPSK	INA	QPSK	1@74	1 @ 34
							QPSK/CP		QPSK /		
4	26	Low	n77	NOTE	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				25	10/10	100/2/0	QPSK	100	QPSK	.00	
				NOTE			QPSK/CP		QPSK /		
5	26	Low	n77	NOTE	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				25			QPSK		QPSK		
							QPSK/CP		QPSK /		
6	26	Low	n77	Low	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@201
							QPSK		QPSK		
							QPSK/CP		QPSK /		
7	26	Low	n77	High	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
							QPSK		QPSK		
				NOTE			QPSK/CP		QPSK /	_	_
8	26	Low	n77	25	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
						L	QPSK		QPSK		
		1	1	Т.	est Setting	g for DC_2	6A_n78A Co	nfiguration			T
	_			l			QPSK/CP		QPSK /		
1	26	Low	n78	High	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
<u> </u>							QPSK		QPSK		
_							QPSK/CP		QPSK /		
2	26	Low	n78	Mid	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				11: 1			QPSK		QPSK		
_	00	1.10 = 0		High	45/35	400/070	QPSK/CP	N I A	QPSK /	4 @ 7 4	4.004
3	26	High	n78		15/75	100/273	-OFDM	NA	CP-OFDM	1@74	1@34
-				NA: al		-	QPSK		QPSK /		
	00	1	r70	Mid	45/75	100/070	QPSK/CP	NIA	QPSK /	1.00	1.0070
4	26	Low	n78		15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@78
-				Lave			QPSK		QPSK /		
5	26	Low	n78	Low	15/75	100/273	QPSK/CP -OFDM	NA	CP-OFDM	1@0	1@201
၁	20	LOW	11/0		13/75	100/2/3	QPSK	INA	QPSK	160	1 4 201
-						<u> </u>	QPSK/CP		QPSK /		
6	26	Low	n78	Note	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
"	20	LOW	'''	13	13/13	100/2/3	QPSK	INC	QPSK	1 000	1 50
		Ī.	l .	l		ĺ	Q1 U1\	l .	GI OIV		1

				Т	est Setting	for DC_2	6A_n79A Cc	onfiguration			
						N/A (N	Note 14)				
				7	Test Settin	g for DC_2	28A_n3A Co	nfiguration			
1	28	Low	n3	Low	20/100	30/160	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@0
2	28	High	n3	High	20/100	30/160	QPSK QPSK/CP -OFDM	NA	QPSK QPSK / CP-OFDM	1@99	1@159
							QPSK QPSK/CP		QPSK /		
3	28	High	n3	Low	20/100	30/160	-OFDM QPSK	NA	CP-OFDM QPSK	1@99	1@0
				7	Test Settin	g for DC_2	28A_n5A Co	nfiguration			
1	28	High	n5	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
2	28	Low	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
3	28	High	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@0
		l		7	est Settin	g for DC_2	28A_n7A Co	nfiguration			•
1	28	High	n7	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
		l		Т	est Setting	for DC_2	8A_n77A Cc	nfiguration			•
1	28	High	n77	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@0
2	28	Low	n77	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@158
3	28	High	n77	High	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@130
4	28	Low	n77	Note 23	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
5	28	Low	n77	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
6	28	Low	n77	Mid	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
7	28	Low	n77	Note 23	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
			_	Т	est Setting	for DC_2	8A_n78A Co	nfiguration			
1	28	Low	n78	Low	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
2	28	High	n78	High	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@272
3	28	Mid	n78	Mid	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@272
4	28	High	n78	Low	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@49	1@190
5	28	High	n78	Mid	10/50	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0

1					Т.	est Settino	a for DC 2	8A_n79A Co	nfiguration			
1				1	_		)			ODCK /		
1   30	1	28	High	n79	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
1					1	est Settin	g for DC_3	30A_n5A Co	nfiguration			
1								QPSK/CP		OPSK /		
1   39	1	30	High	n5	High	10/50	20/106	-OFDM	NA	CP-OFDM	1@49	1@105
1					Te	est Setting	s for DC_3	39A_n41A C	onfiguration			
1								QPSK/CP		QPSK /		
Test Settings for DC. 39A. A79A Configuration	1	39	High	n41	High	20/100	100/273		NA	CP-OFDM	1@99	1@272
1   39				•	Te	est Setting	s for DC	39A n79A C	onfiguration			
1				1						OPSK /		
2   39	1	39	Low	n79	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@146
2   39												
Test Settings for DC_40A_n1A Configuration	2	39	Low	n79	Note 5	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
1				<u> </u>	т	ant Catting	no for DC		nfiguration.	QI SIX		<u> </u>
1	ļ		1	1	1	est setting	JS IOF DC_		ninguration	0.5014.4		1
	_	40	1	4	1	00/400	00/400		N.I.A		4.00	4.600
2	1	40	LOW	n1	LOW	20/100	20/106		NA		1@0	1@0
2												
3   40   High   n1   Mid   20/100   20/106   QPSK	2	40	Lliah	n1	Low	20/100	20/106		NΙΛ		1@00	1@105
3   40   High   n1   Mid   20/100   20/106   OPSK/CP   OPSK   CP-OFDM   1@99   1@56   OPSK		40	nign	l ni	LOW	20/100	20/106		INA		1@99	1@105
3												
A	3	40	High	n1	Mid	20/100	20/106		NΙΛ		1@00	1@56
4   40	٦	40	riigii	'''	IVIIG	20/100	20/100		INA		1@99	1@30
4												
S	4	40	High	n1	Low	20/100	20/106		ΝΔ		1@99	1@77
Test Settings for DC_40A_n41A Configuration	_	40	riigii	'''	LOW	20/100	20/100		INA		1@33	1677
S												
	5	40	High	n1	Low	20/100	20/106		NA		1@99	1@39
1								QPSK		QPSK		
1					Te	est Setting	s for DC_4	10A_n41A C	onfiguration			
1								QPSK/CP		QPSK /		
2   40   High   n41   High   20/100   100/273   QPSK/CP   OFDM   QPSK	1	40	Low	n41	Low	20/100	100/273	-OFDM	NA		1@0	1@0
2         40         High         n41         High         20/100         100/273         -OFDM QPSK         NA CP-OFDM QPSK         1@99         1@272           3         40         Mid         n41         High         20/100         100/273         QPSK/CP OPSK         QPSK/CP QPSK/         QPSK/CP QPSK/CP QPSK/         QPSK/CP QPSK/CP QPSK/         QPSK/CP QPSK/QPSK/CP QPSK/QPSK/CP QPSK/QPSK/QPSK/QPSK/QPSK/QPSK/QPSK/QPSK/								QPSK		QPSK		
3   40   Mid   n41   High   20/100   100/273   OPSK/CP   OPSK								QPSK/CP				
3   40   Mid   n41   High   20/100   100/273   OFDM   NA   CP-OFDM   1@50   1@272   OFDM   QPSK   CP-OFDM   QPSK   QPSK   CP-OFDM   QPSK	2	40	High	n41	High	20/100	100/273		NA		1@99	1@272
3         40         Mid         n41         High         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@50         1@272           4         40         Low         n41         High         20/100         100/273         QPSK/CP QPSK         QPSK/CP QPSK         1@0         1@272           Test Settings for DC_40A_n78A Configuration           1         40         Low         n78         High         20/100         100/273         QPSK/CP OPSK         QPSK QPSK         QPSK QPSK           2         40         High         n78         Low         20/100         100/273         QPSK/CP OPSK         QPSK QPSK QPSK           3         40         Low         n78         High         20/100         100/273         QPSK/CP QPSK QPSK         QPSK QPSK QPSK           4         40         Low         n78         High         20/100         100/273         QPSK/CP QPSK QPSK QPSK         QPSK QPSK QPSK           5         40         High         n78         Low         20/100         100/273         QPSK/CP QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK												
4   40   Low   n41   High   20/100   100/273   QPSK/CP   OFDM   QPSK   QPSK / CP-OFDM   1@0   1@272   QPSK / CP-OFDM   QPSK   QPSK   QPSK / CP-OFDM   QPSK		4.5		<b>.</b>		001:00	400/5=5				4.0	400
4   40   Low   n41   High   20/100   100/273   QPSK/CP   -OFDM   NA   QPSK   CP-OFDM   1@0   1@272   1@272   1   40   Low   n78   High   20/100   100/273   QPSK/CP   -OFDM   QPSK   Q	3	40	Mid	n41	High	20/100	100/273		NA		1@50	1@272
4         40         Low         n41         High         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@0         1@272           Test Settings for DC_40A_n78A Configuration           1         40         Low         n78         High         20/100         100/273         QPSK/CP OFDM QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK												
Test Settings for DC_40A_n78A Configuration	1	40	Low	n/11	Liah	20/100	100/272		NIA		1@0	1@272
Test Settings for DC_40A_n78A Configuration	4	40	LOW	1141	nign	20/100	100/2/3		INA		160	1 42/2
1         40         Low         n78         High         20/100         100/273         QPSK/CP OFDM QPSK         QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK			<u> </u>	<u>i                                      </u>	Т.	et Sottina	s for DC		onfiguration	QI ON		<u> </u>
1         40         Low         n78         High         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@0         1@79           2         40         High         n78         Low         20/100         100/273         -OFDM QPSK/CP QPSK/CP QPSK QPSK         QPSK / QPSK / QPSK / QPSK / QPSK / QPSK         1@99         1@110           3         40         Low         n78         High         20/100         100/273         -OFDM QPSK PSK / QPSK         QPSK /	<u> </u>		I	1	16	sac aecung	3 101 DC_4		omiguration	ODOK /		
2         40         High         n78         Low         20/100         100/273         OPSK/CP OPSK/CP OPSK OPSK OPSK OPSK OPSK         QPSK OPSK OPSK OPSK OPSK OPSK OPSK OPSK O	4	40	Low	n70	Lliah	20/400	100/272		NIA		1@0	1@70
2         40         High         n78         Low         20/100         100/273         QPSK/CP OFDM QPSK         QPSK / CP-OFDM QPSK         1@99         1@110           3         40         Low         n78         High         20/100         100/273         QPSK/CP QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK	'	40	LOW	11/0	riign	20/100	100/2/3		INA		1 60	16/8
2       40       High       n78       Low       20/100       100/273       -OFDM QPSK       NA       CP-OFDM QPSK       1@99       1@110         3       40       Low       n78       High       20/100       100/273       QPSK/CP OFDM QPSK       NA       CP-OFDM QPSK QPSK       1@99       1@0         4       40       Low       n78       High       20/100       100/273       QPSK/CP OFDM QPSK       NA       CP-OFDM QPSK QPSK       1@0       1@234         5       40       High       n78       Low       20/100       100/273       -OFDM QPSK/CP QPSK QPSK QPSK QPSK QPSK       QPSK QPSK QPSK QPSK QPSK QPSK QPSK												
3   40   Low   n78   High   20/100   100/273   OPSK   OPSK   OPSK   OPSK     4   40   Low   n78   High   20/100   100/273   OPSK   OPSK   OPSK     5   40   High   n78   Low   20/100   100/273   OPSK   OPSK   OPSK     5   40   High   n78   Low   20/100   100/273   OPSM   NA   OPSK   OPSK     6   OPSK   OPSK   OPSK     7   OPSK   OPSK   OPSK     8   OPSK   OPSK     9   OPSK   OPSK     1   0   0     1   0	2	40	High	n78	Low	20/100	100/273		NA		1@99	1@110
3 40 Low n78 High 20/100 100/273 OPSK/CP NA CP-OFDM 1@99 1@0  4 40 Low n78 High 20/100 100/273 OPSK OPSK OPSK OPSK OPSK OPSK OPSK OPSK	-			🗸		_ 3, .00						
3         40         Low         n78         High         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@99         1@0           4         40         Low         n78         High         20/100         100/273         QPSK/CP OFDM QPSK         QPSK QPSK         1@0         1@234           5         40         High         n78         Low         20/100         100/273         -OFDM OFDM         NA         CP-OFDM QPSK QPSK         1@29         1@29												
4         40         Low         n78         High         20/100         100/273         QPSK/CP QPSK/CP QPSK / QPSK / QPSK         QPSK / QPSK         1@0         1@234           5         40         High         n78         Low         20/100         100/273         -OFDM QPSK / Q	3	40	Low	n78	High	20/100	100/273		NA		1@99	1@0
4 40 Low n78 High 20/100 100/273 QPSK/CP OFDM NA CP-OFDM 1@0 1@234 QPSK 5 40 High n78 Low 20/100 100/273 OFDM NA CP-OFDM 1@99 1@29												
4     40     Low     n78     High     20/100     100/273     -OFDM QPSK     NA     CP-OFDM QPSK     1@0     1@234       5     40     High     n78     Low     20/100     100/273     -OFDM     NA     CP-OFDM     1@99     1@29												
Low         Low         20/100         QPSK         QPSK QPSK         QPSK QPSK /         QPSK /<	4	40	Low	n78	High	20/100	100/273	-OFDM	NA		1@0	1@234
5 40 High n78 Low 20/100 100/273 -OFDM NA CP-OFDM 1@99 1@29								QPSK				
				_ <u></u>								
	5	40	High	n78	Low	20/100	100/273		NA		1@99	1@29
								QPSK		QPSK		

					1	I	ODOL(/OD		ODOL( /		1
6	40	Low	n78	High	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@0	1@50
	40	LOW	1170	riigii	20/100	100/2/0	QPSK	INA	QPSK	160	1@30
							QPSK/CP		QPSK /		
7	40	Low	n78	High	15/75	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
				3			QPSK		QPSK		
							QPSK/CP		QPSK /		
8	40	High	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
		-					QPSK		QPSK		
							QPSK/CP		QPSK /		
9	40	Low	n78	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@110
							QPSK		QPSK		
1							QPSK/CP		QPSK /		
0	40	Low	n78	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@155
							QPSK		QPSK		
1							QPSK/CP		QPSK /	_	_
1	40	High	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@183
							QPSK		QPSK		
1					//		QPSK/CP		QPSK /		
2	40	Low	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
							QPSK		QPSK		<u> </u>
				T€	est Setting	s for DC_4	10A_n79A Co	onfiguration			
							QPSK/CP		QPSK /		
1	40	Low	n79	Low	20/100	50/270	-OFDM	NA	CP-OFDM	1@0	<u>1@269</u>
							QPSK		QPSK		
							QPSK/CP		QPSK /		
2	40	High	n79	Low	20/100	50/270	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
							QPSK/CP		QPSK /		
3	40	High	n79	High	20/100	50/270	-OFDM	NA	CP-OFDM	1@99	<u>1@269</u>
							QPSK		QPSK		
				Te	est Setting	s for DC_4	11A_n77A C	onfiguration			
							QPSK/CP		QPSK /		
1	41	Mid	n77	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
							QPSK/CP		QPSK /		
2	41	Low	n77	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@185
							QPSK		QPSK		
							QPSK/CP		QPSK /		
3	41	Low	n77	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@57
							QPSK		QPSK		
				Note			QPSK/CP		QPSK /		
4	41	Low	n77	Note 15	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
				13			QPSK		QPSK		
							QPSK/CP		QPSK /		
5	41	Low	n77	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
							QPSK		QPSK		
							QPSK/CP		QPSK /		
6	41	High	n77	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@201
							QPSK		QPSK		
_					06//	40015	QPSK/CP		QPSK /	405	
7	41	Mid	n77	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@46
							QPSK		QPSK		
		١.		١.	00/400	400/070	QPSK/CP	<b>.</b>	QPSK /	4.000	4.6044
8	41	Low	n77	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@214
			<b> </b>				QPSK		QPSK /		<del>                                     </del>
	44	Lave	r77	Lliak	20/400	100/070	QPSK/CP	NΙΛ	QPSK /	1@0	1.000
9	41	Low	n77	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@29
-							QPSK		QPSK /		-
1	41	Lliah	r77	Lliah	20/400	100/272	QPSK/CP	NA	QPSK /	1@00	1@272
0	41	High	n77	High	20/100	100/273	-OFDM QPSK	INA	CP-OFDM QPSK	1@99	1@272
$\vdash$							QPSK/CP		QPSK /		<del> </del>
1	41	Mid	n77	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
1	41	iviiu	11//	iviiu	20/100	100/2/3	QPSK	INA	QPSK	1 (2)	1 60
			ı		<u>I</u>	l	प्रा आ		હા ગા		L

						•					•
1							QPSK/CP		QPSK /		
2	41	Low	n77	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
							QPSK		QPSK		
1	44	1	77	ما ما ا	20/400	400/070	QPSK/CP	NIA	QPSK /	4.00	4 @ 070
3	41	Low	n77	High	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@272
							QPSK/CP		QPSK /		
1	41	Mid	n77	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
4	41	IVIIG	117 7	LOW	20/100	100/2/3	QPSK	INA	QPSK	1 66 99	160
							QPSK/CP		QPSK /		
1	41	High	n77	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@161
5	71	riigii	1177	LOW	20/100	100/2/3	QPSK	14/1	QPSK	1@33	1 6 101
							QPSK/CP		QPSK /		
1	41	High	n77	High	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@122
6		3		3			QPSK		QPSK		
							QPSK/CP		QPSK /		
1	41	Mid	n77	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@27
7							QPSK		QPSK		
				Te	est Setting	s for DC_4	11A_n78A C	onfiguration			
							QPSK/CP	_	QPSK /		
1	41	High	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
		J					QPSK		QPSK		
							QPSK/CP		QPSK /		
2	41	Low	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@185
							QPSK		QPSK		
							QPSK/CP		QPSK /		
3	41	High	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@272
							QPSK		QPSK		
							QPSK/CP		QPSK /		
4	41	Low	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
_	44	1	-70	1	20/400	400/070	QPSK/CP	NIA	QPSK /	4.00	4@044
5	41	Low	n78	Low	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@214
							QPSK/CP		QPSK /		
6	41	Low	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@69
0	71	LOW	1170	IVIIG	20/100	100/2/3	QPSK	INA	QPSK	1 @ 33	1 603
							QPSK/CP		QPSK /		
7	41	Low	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
							QPSK		QPSK		
							QPSK/CP		QPSK /		
8	41	High	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@161
							QPSK		QPSK		
							QPSK/CP		QPSK /		
9	41	Mid	n78	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@0
							QPSK		QPSK		
1							QPSK/CP		QPSK /		
0	41	Low	n78	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@98
							QPSK		QPSK		
				Te	est Setting	s for DC_4		onfiguration			
							QPSK/CP		QPSK /	-	
1	41	Low	n79	Mid	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
							QPSK		QPSK		
				l .			QPSK/CP		QPSK /		10-
2	41	High	n79	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@272
							QPSK		QPSK		
	4.4	L II a. I.	r70	1	20/400	100/070	QPSK/CP	NIA	QPSK /	1.00	1.0400
3	41	High	n79	Low	20/100	100/273	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@188
							QPSK/CP		QPSK /		
4	41	High	n79	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@99	1@93
-	<b>-</b>	riigii	1113	LOW	20/100	100/2/3	QPSK	INC.	QPSK	1 66 22	1 6 33
							QPSK/CP		QPSK /		
5	41	Mid	n79	Low	20/100	100/273	-OFDM	NA	CP-OFDM	1@0	1@0
			"		j. 1 <b>00</b>		QPSK	·	QPSK		

6	41	High	n79	Mid	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@151
7	41	High	n79	High	20/100	100/273	QPSK/CP -OFDM	NA	QPSK / CP-OFDM	1@99	1@272
8	41	Low	n79	Low	20/100	100/273	QPSK QPSK/CP -OFDM	NA	QPSK / QPSK / CP-OFDM	1@0	1@0
			•				QPSK		QPSK		
				Т	est Setting	g for DC_4	2A_n77A Co	nfiguration			
						`	Note 14)				
							48A_n5A Co				
1	48	High	n5	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@105
2	48	High	n5	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
3	48	Low	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
				Te	est Setting	s for DC 4	18A_n66A C	onfiguration			
							QPSK/CP	J	QPSK /		
1	48	High	n66	Low	20/100	40/216	-OFDM	NA	CP-OFDM	1@0	1@0
					ant Catting	no for DC	QPSK	nflauration	QPSK		
		1			est Setting	JS for DC_	66A_n2A Co	nniguration	QPSK /		
1	66	Low	n2	Low	20/100	20/106	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
2	66	High	n2	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
3	66	Low	n2	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@105
4	66	Low	n2	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@105
5	66	Low	n2	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@46
				Т	est Setting	ns for DC	66A_n5A Co	nfiguration	QP3K		
					Jor Octuni		QPSK/CP		QPSK /		
1	66	Low	n5	High	20/100	20/106	-OFDM QPSK	NA	CP-OFDM QPSK	1@0	1@0
2	66	High	n5	High	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@105
3	66	Low	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@0
4	66	High	n5	Low	20/100	20/106	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@0
				Te	est Setting	s for DC_6	66A_n41A C	onfiguration			
1	66	Low	n41	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@272
2	66	Low	n41	Mid	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@0	1@0
3	66	High	n41	Low	20/100	100/273	QPSK/CP -OFDM QPSK	NA	QPSK / CP-OFDM QPSK	1@99	1@59

4   66   Low   A41   High   20/100   100/273   O-PDM   OPSK   O												
Company		00	١.			00/400	400/070	QPSK/CP		QPSK /	4.00	40040
S	4	66	Low	n41	High	20/100	100/2/3		NA		1@0	1@248
5												
Company	5	66	High	n41	Low	20/100	100/273		NA		1@99	1@89
Composition   Composition		00	i ligii	11-71	LOW	20/100	100/2/0		147 (		1 @ 33	1 @ 03
Company   Comp												
Test Setting for DC_66A_n77A Configuration	6	66	Low	n41	High	20/100	100/273		NA		1@0	1@218
Test Setting for DC. 66A_n77A Configuration										QPSK		
R												
R	7	66	High	n41	Mid	20/100	100/273		NA		1@99	1@0
8												
Part						00/400	400/070				4.00	40400
Part	8	66	Low	n41	High	20/100	100/2/3		NA		1@0	1@186
9												
1	a	66	Low	n/11	Low	20/100	100/273		NΔ		1@0	1@203
1	3	00	LOW	1171	LOW	20/100	100/2/3		INA		160	1@203
1												
Per   Per		66	High	n41	Low	20/100	100/273		NA		1@99	1@0
N/A (Note 14)   Test Setting for DC_66A_n77A Configuration	0											
Test Setting for DC_66A_n77A Configuration	"			•	Te	est Setting	s for DC_6	66A_n71A C	onfiguration			•
Test Setting for DC_66A_n77A Configuration							N/A (N	Note 14)				
1						ast Sattine	,		nfiguration			
1			1	1		esi seiiiii	9 101 DC_0		Iniguration			1
Carried Carr						00/400	400/070				4000	40070
2   66	1	66	High	n//	High	20/100	100/2/3		NA		1@99	1@272
2												
3   66   Low   n77   High   20/100   100/273   -OFDM   NA   QPSK / QPS	2	66	Low	n77	High	20/100	100/273		NΙΔ		1@0	1@110
3		00	LOW	1177	lingii	20/100	100/2/3		INA		160	1 6 110
3												
4         66         Low         n77         High         20/100         100/273         QPSK/CP OFDM QPSK         QPSK QPSK         1@0         1@220           5         66         High         n77         Mid         20/100         100/273         OFDM QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK	3	66	Low	n77	High	20/100	100/273		NA		1@0	1@166
4         66         Low         n77         High         20/100         100/273         -OFDM QPSK         NA CP-OFDM QPSK         1@0         1@220           5         66         High         n77         Mid         20/100         100/273         -OFDM QPSK         QPSK/CP QPSK         QPSK/CP-OFDM QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK/CP-OFDM QPSK         QPSK/CP-OFDM QPSK/CP-OFSM/QPSK/QPSK         QPSK/CP-OFDM QPSK/QPSK/QPSK/QPSK/QPSK/QPSK/QPSK/QPSK/					_							
CPSK   CPSK												
5         66         High         n77         Mid         20/100         100/273         -OFDM QPSK         QPSK / CP-OFDM         1@99         1@100           6         66         High         n77         Note 30         20/100         100/273         -OFDM QPSK/CP         QPSK / CP-OFDM QPSK         1@0         1@272           7         66         High         n77         HIgh         20/100         100/273         -OFDM QPSK         QPSK / QPSK / QPSK         QPSK / QPSK / QPSK         QPSK / QPSK / QPSK / QPSK / QPSK / QPSK         QPSK / QP	4	66	Low	n77	High	20/100	100/273		NA		1@0	1@220
5         66         High         n77         Mid         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@99         1@100           6         6         High         n77         Note 30         20/100         100/273         QPSK/CP OFDM QPSK         QPSK/CP QPSK QPSK           7         66         High         n77         HIgh         20/100         100/273         -OFDM QPSK/CP QPSK QPSK         QPSK/CP QPSK QPSK           8         66         Low         n77         High         20/100         100/273         -OFDM QPSK         QPSK/CP QPSK QPSK           9         66         Low         n77         Mid         20/100         100/273         -OFDM QPSK         QPSK/QPSK           9         66         Low         n77         Mid         20/100         100/273         -OFDM QPSK         QPSK/QPSK           1         66         Low         n78         Mid         20/100         100/273         QPSK/QPSK         QPSK/QPSK           2         66         High         n78         High         20/100         100/273         -OFDM QPSK/QPSK         QPSK/QPSK/QPSK           2         66         High         n78         High												
Care   Care	_	00	1.15 1-	77	N 4: -1	00/400	400/070		NIA		4 @ 00	4.60400
6         66         High         n77         Note 30         20/100         100/273         QPSK/CP -OFDM QPSK         QPSK / CP-OFDM QPSK QPSK / QPSK	5	66	High	n//	IVIIO	20/100	100/2/3		NA		1@99	1@100
6         66         High         n77         Note 30         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@0         1@272           7         66         High         n77         HIgh         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK QPSK           8         66         Low         n77         High         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK           9         66         Low         n77         Mid         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK           9         66         Low         n78         Mid         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK           1         66         Low         n78         Mid         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK           2         66         High         n78         High         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK           3         66         Low         n78         Mid         20/100         100/273         -OFDM QPSK/CP         QPSK QPSK												
Test Settings for DC_66A_n78A Configuration	6	66	High	n77		20/100	100/273		NΔ		1@0	1@272
7         66         High         n77         HIgh         20/100         100/273         QPSK/CP OFDM QPSK         QPSK / CP-OFDM QPSK         1@0         1@50           8         66         Low         n77         High         20/100         100/273         OFDM QPSK         QPSK / CP-OFDM QPSK / QP		00	i ligii	11177	30	20/100	100/2/0		1473		1 @ 0	16272
7         66         High         n77         HIgh         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@0         1@50           8         66         Low         n77         High         20/100         100/273         -OFDM QPSK/CP         QPSK / CP-OFDM QPSK         1@0         1@196           9         66         Low         n77         Mid         20/100         100/273         -OFDM QPSK/CP         QPSK / CP-OFDM QPSK         1@0         1@47           Test Settings for DC_66A_n78A Configuration           1         66         Low         n78         Mid         20/100         100/273         -OFDM OPSK/CP QPSK QPSK         QPSK QPSK QPSK           2         66         High         n78         High         20/100         100/273         -OFDM OPSK QPSK QPSK QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK												
QPSK	7	66	High	n77	Hlgh	20/100	100/273		NA		1@0	1@50
8         66         Low         n77         High         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@0         1@196           9         66         Low         n77         Mid         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK / CP-OFDM QPSK         1@0         1@47           Test Settings for DC_66A_n78A Configuration           1         66         Low         n78         Mid         20/100         100/273         -OFDM QPSK/CP OFDM QPSK         QPSK / CP-OFDM QPSK         1@0         1@143           2         66         High         n78         High         20/100         100/273         -OFDM QPSK QPSK QPSK QPSK         QPSK / CP-OFDM QPSK QPSK         QPSK / CP-OFDM QPSK QPSK QPSK QPSK           3         66         Low         n78         Mid         20/100         100/273         -OFDM NA CP-OFDM 1@0         1@0         1@272				<u></u>		<u> </u>	<u></u>	QPSK		QPSK		
QPSK   QPSK												
9         66         Low         n77         Mid         20/100         100/273         QPSK/CP -OFDM QPSK         NA CP-OFDM QPSK         1@0         1@47           1         66         Low         n78         Mid         20/100         100/273         QPSK/CP OFDM QPSK         NA QPSK         QPSK / CP-OFDM QPSK           2         66         High         n78         High         20/100         100/273         -OFDM QPSK QPSK QPSK QPSK         QPSK QPSK QPSK           3         66         Low         n78         Mid         20/100         100/273         -OFDM NA CP-OFDM 1@0         1@0         1@272	8	66	Low	n77	High	20/100	100/273		NA		1@0	1@196
9         66         Low         n77         Mid         20/100         100/273         -OFDM QPSK         NA CP-OFDM QPSK         1@0         1@47           Test Settings for DC_66A_n78A Configuration           1         66         Low         n78         Mid         20/100         100/273         QPSK/CP QPSK QPSK         QPSK QPSK         1@0         1@143           2         66         High         n78         High         20/100         100/273         -OFDM QPSK         NA QPSK         QPSK / CP-OFDM 1@99         1@272           3         66         Low         n78         Mid         20/100         100/273         -OFDM NA CP-OFDM 1@0         1@0         1@272												
Test Settings for DC_66A_n78A Configuration		0.5	l .			00/:55	100/2=5				4.0.5	4.0.:-
Test Settings for DC_66A_n78A Configuration	9	66	Low	n77	Mid	20/100	100/273		NA		1@0	1@47
1         66         Low         n78         Mid         20/100         100/273         QPSK/CP -OFDM QPSK         QPSK / CP-OFDM QPSK         1@0         1@143           2         66         High n78         High High 20/100         100/273         -OFDM QPSK OPSK QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK           3         66         Low n78         Mid 20/100         100/273         -OFDM NA CP-OFDM 1@0         1@0         1@272				I			 			UPSK		
1         66         Low         n78         Mid         20/100         100/273         -OFDM QPSK         NA         CP-OFDM QPSK         1@0         1@143           2         66         High         n78         High         20/100         100/273         -OFDM OPSK/CP         QPSK QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK         QPSK QPSK QPSK         QPSK QPSK QPSK QPSK QPSK         QPSK QPSK QPSK QPSK QPSK QPSK QPSK QPSK			ı	1	F	est Setting	S TOP DC_6		ontiguration	0.5000		ı
2   66   High   n78   High   20/100   100/273   OFDM   NA   CP-OFDM   1@99   1@272     3   66   Low   n78   Mid   20/100   100/273   OFDM   NA   CP-OFDM   1@0   1@272     3   66   Low   n78   Mid   20/100   100/273   OFDM   NA   CP-OFDM   1@0   1@272		00	l	70		00/400	400/070		N. A		4.60	4.6440
2 66 High n78 High 20/100 100/273 QPSK/CP QPSK CP-OFDM 1@99 1@272 QPSK QPSK QPSK QPSK QPSK QPSK 1 QPSK / QPSK QPSK / QPSK	1	66	LOW	n/8	IVIId	20/100	100/2/3		NA		1@0	1@143
2         66         High         n78         High         20/100         100/273         -OFDM QPSK         NA CP-OFDM QPSK         1@99         1@272           QPSK         QPSK/CP         QPSK / QPSK				-								
QPSK   QPSK   QPSK	2	66	High	n7Ω	High	20/100	100/272		NIA		1@00	1@272
3 66 Low n78 Mid 20/100 100/273 -OFDM NA CP-OFDM 1@0 1@272	-	00	i ligii	11/0	riigii	20/100	100/2/3		INA		1 (6 22	1 4212
3 66 Low n78 Mid 20/100 100/273 -OFDM NA CP-OFDM 1@0 1@272												
	3	66	Low	n78	Mid	20/100	100/273		NA		1@0	1@272
				0				QPSK		QPSK		

- Note 1: Use DC Configuration specific test points if present in the table, otherwise use test points from matching Group Test Settings, if present in the table. Otherwise use the Default Test Settings test points.
- Note 2: X, nY correspond to the different bands in the DC Configuration. E.g. for DC\_1A\_n3A, X=1, nY=n3.
- Note 3: Void.
- Note 4: Test Point ID 4 for DC\_3A\_n41A have the centre carrier frequency of 1773 MHz in Band 3 (EARFCN=19830).
- Note 5: Test Point ID 4 for DC\_39A\_n79A has the centre carrier frequency of 4649.96 MHz in Band 79 (NR ARFCN=709998).
- Note 6: Void.
- Note 7: Void.
- Note 8: Test Point ID 3 for DC\_1A\_n78A has the centre carrier frequency of 3473.43 MHz in Band 78 (NR ARFCN=631562).
- Note 9: Test Point ID 1 for DC\_8A\_n77A has the centre carrier frequency of 3950.13 MHz in Band n77 (NR ARFCN=663342). Test Point ID 5 has the centre carrier frequency of 3524.55 MHz in Band n77 (NR ARFCN=634970). Test Point ID 8 has the centre carrier frequency of 3584.55 MHz in Band n77 (NR ARFCN=638970).
- Note 10: Test Point ID 1 for DC\_11A\_n77A has the centre carrier frequency of 3617.43 MHz in Band n77 (NR ARFCN=641162). Test Point ID 5 has the centre carrier frequency of 3686.43 MHz in Band n77 (NR ARFCN=645762). Test Point ID 6 has the centre carrier frequency of 3494.94 MHz in Band n77 (NR ARFCN=632996). Test Point ID 7 has the centre carrier frequency of 3858.42 MHz in Band n77 (NR ARFCN=657228). Test Point ID 9 has the centre carrier frequency of 4037.43 MHz in Band n77 (NR ARFCN=669162). Test Point ID 10 has the centre carrier frequency of 4097.43 MHz in Band n77 (NR ARFCN=673162).
- Note 11: Test Point ID 5 for DC\_11A\_n78A has the centre carrier frequency of 3686.43 MHz in Band n78 (NR ARFCN=645762). Test Point ID 6 has the centre carrier frequency of 3494.94 MHz in Band n78 (NR ARFCN=632996).
- Note 12: Void
- Note 13: Test Point ID 6 for DC\_26A\_n78A has the centre carrier frequency of 3483.78 MHz in Band n78 (NR ARFCN=632252).
- Note 14: Test case not applicable for the EN-DC configuration as no IM products occurs in the protected bands. For EN-DC only capable devices, the test requirements as in clause 6.5.3.2.5 in TS 38.521-1 [8] is needed.
- Note 15: Test Point ID 4 for DC\_41A\_n77A has the centre carrier frequency of 3488.55 MHz in Band n77 (NR ARFCN=632570).
- Note 16: Void.
- Note 17: Test Point ID 6 for DC\_19A\_n78A has the centre carrier frequency of 3499.8 MHz in Band n78 (NR ARFCN=633320).
- Note 18: Test Point ID 4 for DC\_1A\_n77A has the centre carrier frequency of 3472.95 MHz in Band n77 (NR ARFCN=631530). Test Point ID 5 has the centre carrier frequency of 3987.03 MHz in Band n77 (NR ARFCN=665802). Test Point ID 6 has the centre carrier frequency of 3857.04 MHz in Band n77 (NR ARFCN=657136). Test Point ID 7 has the centre carrier frequency of 3874.53 MHz in Band n77 (NR ARFCN=658302). Test Point ID 8 has the centre carrier frequency of 3887.04 MHz in Band n77 (NR ARFCN=659136).
- Note 19: Test Point ID 1 for DC\_3A\_n77A has the centre carrier frequency of 3900.03 MHz in Band n77 (NR ARFCN=660002). Test Point ID 2 has the centre carrier frequency of 3602.55 MHz in Band n77 (NR ARFCN=640170). Test Point ID 5 has the centre carrier frequency of 3660.15 MHz in Band n77 (NR ARFCN=644010).
- Note 20: Test Point ID 6 for DC\_21A\_n78A has the centre carrier frequency of 3515.19 MHz in Band n78 (NR ARFCN=634346)
- Note 21: Test Point ID 1 for DC\_21A\_n77A has the centre carrier frequency of 3637.68 MHz in Band n77 (NR ARFCN=642512). Test Point ID 6 has the centre carrier frequency of 3515.19 MHz in Band n77 (NR ARFCN=634346). Test Point ID 7 has the centre carrier frequency of 3898.92 MHz in Band n77 (NR ARFCN=659928). Test Point ID 9 has the centre carrier frequency of 4057.68 MHz in Band n77 (NR ARFCN=670512).
- Note 22: Test Point ID 4 for DC\_21A\_n79A has the centre carrier frequency of 4846.53 MHz in Band n79 (NR ARFCN=723102).
- Note 23: Test Point ID 4 for DC\_28A\_n77A has the centre carrier frequency of 3474,63 MHz in Band n77 (NR ARFCN=631642). Test Point ID 7 for have the centre carrier frequency of 3597,12 MHz in Band n77 (NR ARFCN=639808).
- Note 24: Test Point ID 5 for DC\_20A\_n78A has the centre carrier frequency of 3477.03 MHz in Band n78 (NR ARFCN=631802).
- Note 25: Test Point ID 2 for DC\_26A\_n77A has the centre carrier frequency of 3521.13 MHz in Band n77 (NR ARFCN=634742). Test Point ID 4 has the centre carrier frequency of 3578.73 MHz in Band n77 (NR ARFCN=638582). Test Point ID 5 has the centre carrier frequency of 4028.64 MHz in Band n77 (NR ARFCN=668576). Test Point ID 8 has the centre carrier frequency of 3483.78 MHz in Band n77 (NR ARFCN=632252).
- Note 26: Test Point ID 2 for DC\_19A\_n77A has the centre carrier frequency of 3553.14 MHz in Band n77 (NR ARFCN=636876). Test Point ID 4 has the centre carrier frequency of 4060.62 MHz in Band n77 (NR ARFCN=670708). Test Point ID 5 has the centre carrier frequency of 3610.74 MHz in Band n77 (NR

- ARFCN=640716). Test Point ID 7 has the centre carrier frequency of 3499.8 MHz in Band n77 (NR ARFCN=633320).
- Note 27: Test Point ID 2 for DC\_2A\_n77A has the centre carrier frequency of 3900 MHz in Band n77 (NR ARFCN=660000). Test Point ID 3 has the centre carrier frequency of 4000 MHz in Band n77 (NR ARFCN=666667).
- Note 28: Test Point ID 3 for DC\_5A\_n77A has the centre carrier frequency of 4000 MHz in Band n77 (NR ARFCN=666667). Test Point ID 4 has the centre carrier frequency of 3600 MHz in Band n77 (NR ARFCN=640000). Test Point ID 5 has the centre carrier frequency of 3658.14 MHz in Band n77 (NR ARFCN=643876).
- Note 29: Test Point ID 1 for DC\_13A\_n77A has the centre carrier frequency of 3500 MHz in Band n77 (NR ARFCN=633333). Test Point ID 3 has the centre carrier frequency of 3880 MHz in Band n77 (NR ARFCN=658668). Test Point ID 4 has the centre carrier frequency of 3611.64 MHz in Band n77 (NR ARFCN=640776). Test Point ID 5 has the centre carrier frequency of 3504.24 MHz in Band n77 (NR ARFCN=633616).
- Note 30: Test Point ID 6 for DC\_66A\_n77A has the centre carrier frequency of 3900 MHz in Band n77 (NR ARFCN=660000).
- Note 31: Test Point ID 2 for DC\_18A\_n77A have the centre carrier frequency of 3441,39 MHz in Band n77 (NR ARFCN=649400). Test Point ID 3 and 5 for DC\_18A\_n77A have the centre carrier frequency of 3602,55 MHz in Band n77 (NR ARFCN=640170). Test Point ID 4 for DC\_18A\_n77A have the centre carrier frequency of 4049,76 MHz in Band n77 (NR ARFCN=669984).
- Note 32: Test Point ID 2 for DC\_18A\_n78A have the centre carrier frequency of 3441,39 MHz in Band n78 (NR ARFCN=629400). Test Point ID 3 for DC\_18A\_n78A have the centre carrier frequency of 3602,55 MHz in Band n78 (NR ARFCN=640170).

Additional step 9 when both bands are TDD:

8. For both E-UTRA and NR UL uplink carriers active when both bands are TDD, ensure E-UTRA UL transmission overlaps with NR UL transmission in time by giving SCG a delay of 3 E-UTRA subframes, or by giving MCG a delay of 2 subframes.

#### 6.5B.3.3.2.4.2 Test Procedure

Same test procedure as described in clause 6.5B.3.1.2.4.2 with the following exceptions:

Instead of Table 6.5B.3.1.2.3-1 --> use Table 6.5B.3.3.2.5-1 and 6.5B.3.3.2.5-2.

In addition to test configurations above, EN-DC only capable UEs and UEs not supporting NR/5GC mode in the tested band needs to be tested according to LTE anchor agnostic approach below.

Same test description as in clause 6.5.3.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 6.5.3.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.3.2.4.1 in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.5B.3.3.2.4.3 Message Contents

Message contents are according to TS 36.508 [11] clause 4.6 and TS 38.508-1 [6] clause 4.6.1 with the following exceptions.

# Table 6.5B.3.3.2.4.3-1: SystemInfomationBlockType1: tdd-Config if E-UTRA on TDD band

Derivation Path: TS 36.508 [11], Table 4.6.3-23			
Information Element	Value/remark	Comment	Condition
TDD-Config-DEFAULT ::= SEQUENCE {		Operating on TDD	
		band	
subframeAssignment	Sa2		
specialSubframePatterns	Ssp7		
}			

Table 6.5B3.3.2.4.3-1a: Void

### Table 6.5B.3.3.2.4.3-2: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4	4.6.1-8		
Information Element	Value/remark	Comment	Condition
p-MaxEUTRA-r15	23		Power Class 2 UE AND simultaneous E- UTRA and NR transmission
p-iviaxEUTRA-ITS	20		Power Class 3 UE AND simultaneous E- UTRA and NR transmission

# Table 6.5B.3.3.2.4.3-3: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106									
Information Element	Condition								
p-NR-FR1	23		Power Class 2 UE AND simultaneous E- UTRA and NR transmission						
	20		Power Class 3 UE AND simultaneous E- UTRA and NR transmission						

# 6.5B.3.3.2.5 Test Requirement

The test requirements are in Table 6.5B.3.3.2.5-1 and Table 6.5B.3.3.2.5-2 for Release 15 and Release 16, respectively. For EN-DC only capable devices, in addition to Table 6.5B.3.3.2.5-1 and Table 6.5B.3.3.2.5-2, the test requirements as in clause 6.5.3.2.5 in TS 38.521-1 [8] are also needed.

For inter-band EN\_DC with the uplink assigned to one LTE band and one NR band, the test requirements in Table 6.5B.3.3.2.5-1 and Table 6.5B.3.3.2.5-2 can be verified by measuring spurious emissions at the specific frequencies where second and third order intermodulation products generated by the two transmitted carriers can occur.

Table 6.5B.3.3.2.5-1: Requirements for inter-band within FR1 for Rel-15

	Spurious emission								
EN-DC Configuration	Protected band		ency MHz	range )	Maximum Level (dBm)	MBW (MHz)	NOTE		
DC_1_n28	E-UTRA Band 7, 31, 41, 72, 73 NR Band n79	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1			
	E-UTRA Band 42, 52 NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2		
	Frequency range	470	-	694	-42	8	5, 17		
	Frequency range	470	-	710	-26.2	6	14		
DC_1_n77	E-UTRA Band 1, 3, 11, 21, 34, 65, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1			
	Frequency range	1880	-	1895	-40	1	5, 8		
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8		
	Frequency range	1915	-	1920	1.6	5	5, 7, 8		
DC_1_n78	E-UTRA Band 3, 11, 21, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
	Frequency range	1880	-	1895	-40	1	5, 8		
DC_1_n79	E-UTRA Band 5, 7, 8, 18, 19, 26, 28, 41	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1			
DC_2_n5	E-UTRA Band 42, 48	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
	E-UTRA Band 41, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2		
DC_2_n66	E-UTRA Band 4, 10, 24, 50, 66, 70, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	- 1	F <sub>DL_high</sub>	-50	1	5		
	E-UTRA Band 42, 48	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2		
DC_2_n71	E-UTRA Band 41	F <sub>DL_low</sub>	-	FDL high	-50	1	2		
DC_2_n78	E-UTRA Band 24, 50, 51, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	<u> </u>		
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	- 1	F <sub>DL_high</sub>	-50	1	2		
DC_3_n7	E-UTRA Band 5, 8, 20, 26, 27, 28, 44, 67	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2		
DC_3_n8	E-UTRA Band 20, 28, 38, 69	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
2 0_00	E-UTRA Band 7, 22, 41, 42, 43 NR band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2		
DC_3_n28	NR band n77	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2		
2 0_020	E-UTRA Band 7, 41	F <sub>DL_low</sub>	-	FDL_high	-50	1			
DC_3_n77	E-UTRA Band 1, 3, 28, 34, 39, 40, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
	Frequency range	1884.5	- 1	1915.7	-41	0.3	3		
DC_3_n78	E-UTRA Band 3, 34, 39	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
DO_0_III 0	Frequency range	1884.5	-	1915.7	-41	0.3	3		
DC_3_n79	E-UTRA Band 5, 8, 11, 18, 19, 21, 41, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
DC_5_n66	E-UTRA Band 5, 6, 7, 8, 38	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
DO_0_1100	E-UTRA Band 26	859	-	869	-27	1			
	E-UTRA Band 41, 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2		
DC_5_n78	E-UTRA Band 1, 2, 3, 4, 7, 25, 34, 38, 65, 66, 70	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1			
	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 7		
DC_7_n28	E-UTRA Band 3	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1			
	NR band n78	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2		
DC_7_n78	E-UTRA Band 3, 5, 8, 11, 18, 19, 20, 21, 26, 27, 28, 32, 50, 51, 67, 68, 74, 75, 76	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1			
DC_8_n77	E-UTRA Band 1, 32, 33, 34, 38, 39, 40,50, 65, 69, 74, 75	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1			
	E-UTRA band 3, 7, 41	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2		
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	12		
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 12		
DC_8_n78	E-UTRA band 34, 39, 40, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1			
	E-UTRA Band 3, 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2		
	E-UTRA Band 11, 21	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	12		
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 12		
DC_11_n77	E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 65	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1			

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Frequency range	1884.5	-	1915.7	-41	0.3	3

499

Frequency range	2545	-	2575	-50	1	

500

F	2505		0045		4	í
I Frequency range	2595	-	2645	-50	1 1	i

1		Т			Т		
DC_11_n78	E-UTRA Band 1, 3, 18, 19, 28, 34,	F <sub>DL low</sub>	_	F <sub>DL high</sub>	-50	1	
	40, 65	_		- •			
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_11_n79	E-UTRA Band 1, 3, 18, 19, 28, 34,	$F_{DL\_low}$	-	$F_DL$ high	-50	1	
	40, 42, 65	1884.5		1915.7	44	0.0	2
	Frequency range	1884.5	+-	1915.7	-41 -41	0.3	3
	Frequency range		+-			_	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_12_n66	E-UTRA Band 41	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
DC_19_n77	E-UTRA Band 1, 3, 34, 40, 65	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n78	E-UTRA Band 1, 3, 34, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DO_13_1170		1884.5	-	1915.7	-41	0.3	3
	Frequency range		_				3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n79	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_20_n28	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_20_n78	E-UTRA Band 1, 3, 7, 33, 34, 65	FDL_low	-	FDL_high	-50	1	
	E-UTRA Band 38, 69	FDL low	-	FDL_high	-50	1	2
DC_21_n77	E-UTRA Band 1, 3, 18, 19, 28,	_		g			_
50_21_1111	34, 40, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
		045	-	960	F0	1	
	Frequency range	945	-		-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_21_n78	E-UTRA Band 1, 3, 18, 19, 28,	_		L			
	34, 40, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_21_n79	E-UTRA Band 3, 21, 34, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DO_21_IIIO	Frequency range	1884.5	+	1915.7	-41	0.3	3
DC 25 n41	E-UTRA Band 12, 13, 14, 17, 28, 29,	1004.5	┿	1913.1	-41	0.5	3
DC_25_N41	42, 71	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	NR Band n77	_		Е	-50	1	5
DO 00 = 44		F <sub>DL_low</sub>	+-	F <sub>DL_high</sub>			5
DC_26_n41	E-UTRA Band 3, 5, 18, 19, 26, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	-
	Frequency range	799	-	803	-40	1	5
DO 00 77	Frequency range	945	+-	960	-50	1	
DC_26_n77	E-UTRA Band 1, 3, 34, 39, 40,	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	
	65						
	E-UTRA Band 41	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_26_n78	E-UTRA Band 1, 3, 34, 39, 65	F <sub>DL low</sub>	-	F <sub>DL high</sub>	-50	1	
	E-UTRA Band 41	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	2
	1 7 5	2595	+-	2645	-50	1	
DC 00 77	Frequency range		╀			1	
DC_28_n77	E-UTRA Band 3, 7, 34, 39, 40, 41	FDL_low	+-	FDL_high	-50		2
	E-UTRA Band 1, 65	FDL_low	-	FDL_high	-50	1	2
	E-UTRA Band 1	FDL_low	+-	FDL_high	-50	1	9, 11
DC 00 70	Frequency range	1884.5	+-	1915.7	-41	0.3	3, 9
DC_28_n78	E-UTRA Band 3, 7, 34, 39, 40,	_		_			
DC_28_n83_ULS	41	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
UP-TDM_n78							
	E-UTRA Band 1, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_28_n79	E-UTRA Band 42	FDL_low		FDL_high	-50	1	2
DC_30_n5	E-UTRA Band 71	F <sub>DL_low</sub>	_	FDL_high	-50	1	
			-			1	
DC_39_n41	E-UTRA Band 42, 44	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		
	NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_39_n79	E-UTRA Band 8, 41, 44	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_40_n41	Bands 1, 34, 39, 65	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	NR Band n79	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2

	Frequency range	1884.5	-	1915.7	-41	0.3	3, 19
DC_41_n77	E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 33, 34, 39, 44, 45, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_41_n78	E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 44, 45, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_41_n79	E-UTRA Band 1, 3, 5, 8, 18, 19, 26, 28, 34, 40, 44, 65	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_66_n5	E-UTRA Band 5, 6, 7, 8, 26, 38	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 41, 42, 52	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_66_n78	E-UTRA Band 3, 34, 39	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	

- NOTE 1: FDL\_low and FDL\_high refer to each frequency band specified in Table 5.5-1 of TS 36.101 [5] or in Table 5.2-1 in TS 38.101-1 [2].
- NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 in TS 36.101 [5] and Table 6.5.3.1-2 in TS 38.101-1 [2] are permitted for each assigned carrier used in the measurement due to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2MHz + N x L<sub>CRB</sub> x 180kHz), where N is 2, 3, 4, 5 for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.
- NOTE 3: Applicable when co-existence with PHS system operating in 1884.5 -1915.7MHz
- NOTE 4: Void.
- NOTE 5: These requirements also apply for the frequency ranges that are less than F<sub>OOB</sub> (MHz) in Table 6.6.3.1-1, Table 6.6.3.1A-1in TS 36.101 [5] or in Table 6.5.3.1-1 in TS 38.101-1 [2] from the edge of the channel bandwidth.
- NOTE 6: This requirement is applicable for any channel bandwidths within the range 2500 2570 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2560.5 2562.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2552 2560 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 7: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.
- NOTE 8: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink.
- NOTE 9: Applicable when the assigned E-UTRA or NR carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz.
- NOTE 10: As exceptions, measurements with a level up to the applicable requirement of -38 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 2nd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 2nd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 11: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 3rd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 3rd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 12: This requirement is applicable only for the following cases:

  A: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 902.5 MHz

  ≤ Fc < 907.5 MHz with an uplink transmission bandwidth less than or equal to 20 RB:

  B: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 907.5 MHz

  ≤ Fc ≤ 912.5 MHz without any restriction on uplink transmission bandwidth;

  C: for carriers of 10 MHz channel bandwidth when carrier centre frequency (Fc) is Fc = 910 MHz with an uplink transmission bandwidth less than or equal to 32 RB with RBstart > 3.
- NOTE 13: Void.
- NOTE 14: This requirement is applicable for 5 and 10 MHz E-UTRA or NR channel bandwidth allocated within 718-728MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RBstart > 1 and RBstart < 48.
- NOTE 15: Void.
- NOTE 16: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 17: This requirement is applicable in the case of a 10 MHz E-UTRA carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.
- NOTE 18: This requirement is only applicable for E-UTRA carriers with bandwidth confined within 1885 1920 MHz (requirement for carriers with at least 1RB confined within 1880 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for E-UTRA carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1892.5 1894.5 MHz and for E-UTRA carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1895 1903 MHz.
- NOTE 19: Void.

Table 6.5B.3.3.2.5-2: Requirements for inter-band within FR1 for Rel-16

DC_1_n5	Protected band				Maximum	MBW	NOTE
_		Frequency range (MHz)			Maximum Level (dBm)	MBW (MHz)	NOTE
DC_1_n5	E-UTRA Band 1, 11, 21, 32, 43, 50, 65, 74, 75	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_1_n5	NR Band 77, 78	F <sub>DL_low</sub>	1 -	F <sub>DL_high</sub>	-50	1	2
<del> </del>	E-UTRA Band 22, 42, 43	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_1_n7	E-UTRA Band 32, 50, 51, 75, 76	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	NR Band n79	F <sub>DL low</sub>	-	F <sub>DL high</sub>	-50	1	
DC_1_n8	E-UTRA Band 43 NR band n77, n78, n79	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_1_n28	E-UTRA Band 7, 31, 41, 72, 73 NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
-	E-UTRA Band 42, 52 NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	470	-	694	-42	8	5, 17
	Frequency range	470	-	710	-26.2	6	14
DC_1_n77	E-UTRA Band 1, 3, 11, 21, 34, 65, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1880	-	1895	-40	1	5, 8
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8
	Frequency range	1915	-	1920	1.6	5	5, 7, 8
DC_1_n78	E-UTRA Band 3, 11, 21, 74	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	Frequency range	1880	-	1895	-40	1	5, 8
DC_1_n79	E-UTRA Band 5, 7, 8, 18, 19, 26, 28, 41	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_2_n5	E-UTRA Band 42, 48 NR band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 41, 43	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n41	E-UTRA Band 12, 13, 14, 17, 28, 29, 42, 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Bands 2	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5
DC_2_n66	E-UTRA Band 4, 10, 24, 50, 66, 70, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 2, 25	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5
	E-UTRA Band 42, 48	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n71	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n78	E-UTRA Band 24, 50, 51, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DO 0 4	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_3_n1	E-UTRA Band 1, 11, 21, 32, 50, 65, 74, 75	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
DC_3_n5	E-UTRA Band 5, 7, 8, 18,19, 26, 38	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
_	NR Band n79	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_3_n7	E-UTRA Band 5, 8, 20, 26, 27, 28, 44, 67	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_3_n28	NR band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC 0 =44	E-UTRA Band 7, 41	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_3_n41	E-UTRA Band 5, 8, 20, 26, 27, 28, 44	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
_	E-UTRA Band 18, 19	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	14, 20
	E-UTRA Band 42, NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_3_n77	E-UTRA Band 1, 3, 28, 34, 39, 40, 65, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n78	E-UTRA Band 3, 34, 39	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n79 DC_5_n2	E-UTRA Band 5, 8, 11, 18, 19, 21, 41, 74 E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50 -50	1 1	

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	E-UTRA Band 41, 43	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_5_n66	NR Band n77 E-UTRA Band 5, 6, 7, 8, 38	E		E	-50	1	
DC_5_1100	E-UTRA Band 3, 6, 7, 8, 38	F <sub>DL_low</sub> 859	-	F <sub>DL_high</sub> 869	-27	1	
			-			1	2
	E-UTRA Band 41, 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_5_n78	NR Band n77		1				
DC_5_II76	E-UTRA Band 1, 2, 3, 4, 7, 25,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	34, 38, 65, 66, 70	_	-	-	<b>50</b>	4	0.7
DO 7 4	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 7
DC_7_n1	E-UTRA Band 32, 50, 51, 75, 76	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DO 7 0	or NR Band n79			- 3			
DC_7_n3	E-UTRA Band 5, 8, 20, 26, 27,	F <sub>DL low</sub>	-	F <sub>DL high</sub>	-50	1	
	28, 67, 68			- 3			
	E-UTRA band 42, 52	_		_	-50	1	2
DO 7 5	NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>		4	
DC_7_n5	E-UTRA Band 5, 26, 28, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
50 7 0	NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_7_n8	E-UTRA Band 20, 28, 67, 68	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 42, 52	F <sub>DL low</sub>	-	$F_{DL\_high}$	-50	1	2
B0 7 00	NR band n77, n78						
DC_7_n28	E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
50 7 00	NR band n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_7_n66	E-UTRA Band 5, 12, 13, 14, 17,	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	
	26, 27, 28, 29, 85						
	E-UTRA band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_7_n78	E-UTRA Band 3, 5, 8, 11, 18,	_		_			
	19, 20, 21, 26, 27, 28, 32, 50,	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	51, 67, 68, 74, 75, 76						
DC_8_n1	E-UTRA Band 43 or NR Band	F <sub>DL</sub> low	_	FDL high	-50	1	2
	n77, n78, n79			- 0			
DC_8_n3	E-UTRA Band 20, 28, 38, 44	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 7, 22, 41, 42, 43				-50	1	2
	or NR Band n77, n78, n79	F <sub>DL_low</sub>	-	$F_{DL\_high}$			
	Frequency range	860	-	890	-40	1	5, 12
DC_8_n20	E-UTRA Band 67, 68	749	-	783	-50	1	
	E-UTRA Band 7, 38, 69	2570	-	2690	-50	1	2
	E-UTRA Band 8, 20	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	5
	Frequency range	758	-	788	-50	1	
DC_8_n28	E-UTRA Band 38, 40	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 41	F <sub>DL low</sub>	-	$F_DL\ high$	-50	1	2
	Frequency range	491	-	616	-42	8	5, 17
	Frequency range	491	-	616	-26.2	6	14
DC_8_n41	E-UTRA Band 28	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA band 3, 42, 52	F <sub>DL low</sub>		F <sub>DL high</sub>	-50	1	2
	NR Band n77, n78, n79	I DL_low		I DL_nign	-50	'	
	E-UTRA Band 8	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5
	Frequency range	860	-	890	-40	1	5, 12
DC_8_n77	E-UTRA Band 1, 32, 33, 34, 38, 39,	F <sub>DL low</sub>	_	F <sub>DL high</sub>	-50	1	
	40,50, 65, 69, 74, 75	_		- 0			
	E-UTRA band 3, 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2 12
	E-UTRA Band 11, 21	F <sub>DL_low</sub> 1884.5	-	F <sub>DL_high</sub>	-50 -41	1	
DC_8_n78	Frequency range		_	1915.7	<del>-41</del>	0.3	3, 12
DC_0_II/0	E-UTRA band 34, 39, 40, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>		1	2
	E-UTRA Band 3, 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2 12
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	•	
DC 44 77	Frequency range E-UTRA Band 1, 3, 18, 19, 28, 34,	1884.5	-	1915.7	-41	0.3	3, 12
DC_11_n77	65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	+-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-		-50	1	
DC_11_n78	E-UTRA Band 1, 3, 18, 19, 28, 34,				-50	1	
- <del>-</del>	40, 65	F <sub>DL_low</sub>	ļ-	$F_{DL_{high}}$			
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_11_n79	E-UTRA Band 1, 3, 34, 42, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50 -41	0.3	
20_110	Frequency range	1884.5	l -	1915.7			3

DO 40 = 70	F LITDA D-1-10 7 05 44	1 <b>-</b>	1	_	50		
DC_12_n78	E-UTRA Band 2, 7, 25, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	0
	E-UTRA Band 4, 66	F <sub>DL_low</sub>	-	FDL_high	-50	1	2
DO 40 =0	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_13_n2	E-UTRA Band 41	F <sub>DL_low</sub>	-	FDL_high	-50	1	
DC_13_n66	E-UTRA Band 41, 53	F <sub>DL_low</sub>	-	FDL_high	-50	1	
DO 44 =0	NR Band n77	F <sub>DL_low</sub>	-	FDL_high	-50	1	2
DC_14_n2	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DO 44 = 00	NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_14_n66	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DO 40 77	NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	-
DC_19_n77	E-UTRA Band 1, 3, 34, 40, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	0
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
DO 40 = 70	Frequency range	2595	-	2645	-50	1	
DC_19_n78	E-UTRA Band 1, 3, 34, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	0
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
50 10 70	Frequency range	2595	-	2645	-50	1	T
DC_19_n79	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_20_n1	E-UTRA Band 22, 42, 43	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	NR Band 77, 78	F <sub>DL low</sub>	-	F <sub>DL high</sub>	-50	1	2
DC_20_n3	E-UTRA Band 7, 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 38, 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_20_n7	E-UTRA Band 68	776	-	783	-50	1	
	E-UTRA Band 42, 52	3332	-	3432	-50	1	2
	NR band n77, n78	3332	-	3432	-50	1	2
	E-UTRA Band 20	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
DC_20_n8	E-UTRA Band 28	$F_{DL\_low}$	-	$F_{DL_{high}}$	-50	1	
	E-UTRA Band 7, 38	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_20_n28	E-UTRA Band 8	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	1
DC_20_n78	E-UTRA Band 1, 3, 7, 33, 34, 65	FDL_low	-	FDL_high	-50	1	
	E-UTRA Band 38, 69	FDL_low	-	FDL_high	-50	1	2
DC_21_n77	E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	_
	Frequency range	2595	-	2645	-50	1	
DC_21_n78	E-UTRA Band 1, 3, 18, 19, 28,	-					
	34, 40, 65	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_21_n79	E-UTRA Band 3, 21, 34, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_25_n41	E-UTRA Band 12, 13, 14, 17, 28,				50	ľ	
	29, 42, 71	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	NR Band n77	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_26_n41	E-UTRA Band 3, 5, 18, 19, 26, 42	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	799	-	803	-40	1	5
<b>DO 05</b>	Frequency range	945	-	960	-50	1	
DC_26_n77	E-UTRA Band 1, 3, 34, 39, 40, 65	F <sub>DL_low</sub>	_	$F_{DL\_high}$	-50	1	
	E-UTRA Band 41	F <sub>DL_low</sub>		F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_26_n78	E-UTRA Band 1, 3, 34, 39, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50 50	1	2
DC_28_n3	Frequency range	2595	-	2645	-50 50	1	2
DC_20_113	NR Band n77	F <sub>DL_low</sub>	<del>-</del>	F <sub>DL_high</sub>	-50	1	
DC 00 F	E-UTRA Band 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_28_n5	E-UTRA Band 8, 40, 71	F <sub>DL_low</sub>	<u> </u>	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 24	1527	-	1559	-50	1	
	E-UTRA Band 30	2351	-	2360	-50	1	F 47
	Frequency range	557	-	672	-42	8	5, 17
	Frequency range	557	-	672	-26.2	6	14

	Frequency range	662	-	672	-26.2	6	5
DC_28_n7	E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_28_n77	E-UTRA Band 3, 7, 34, 39, 40, 41	FDL_low	-	FDL_high	-50	1	
	E-UTRA Band 1, 65	FDL_low	-	FDL_high	-50	1	2
	E-UTRA Band 1	FDL_low	-	FDL_high	-50	1	9, 11
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 9

				1		1	
DC_28_n78 DC_28_n83_ULS UP-TDM_n78	E-UTRA Band 3, 7, 34, 39, 40, 41	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 1, 65	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 1	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	9, 11
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_28_n79	E-UTRA Band 42	FDL_low	-	FDL_high	-50	1	2
DC_30_n5	E-UTRA Band 71	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	NR band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_39_n41	E-UTRA Band 42, 44	F <sub>DL_low</sub>	-	FDL high	-50	1	
	NR Band n77, n78, n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_39_n79	E-UTRA Band 8, 28, 41, 44	F <sub>DL</sub> low	-	FDL high	-50	1	
DC_40_n1	E-UTRA Band 7, 31, 32, 41, 45, 50, 72, 73, 74, 75	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_40_n41	Bands 1, 34, 39, 65	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3, 19
DC_40_n78	E-UTRA Band 5, 8, 11, 18, 19, 20, 21, 26, 27, 28, 32, 44, 45, 50, 51, 74, 75, 76	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	NR Band n79	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2
DC_40_n79	E-UTRA Band 1, 34, 41, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_41_n77	E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 33, 34, 39, 44, 45, 74	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_41_n78	E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 44, 45, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_41_n79	E-UTRA Band 1, 3, 5, 8, 9, 18, 19, 26, 28, 34, 40, 44, 65	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_48_n5	E-UTRA Band 25, 70	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_48_n66	E-UTRA Band 2, 25	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
DC_66_n2	E-UTRA Band 4, 10, 22, 24, 50, 66, 70, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	5
	E-UTRA Band 42, 43 NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_66_n5	E-UTRA Band 5, 6, 7, 8, 26, 38	F <sub>DL low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 41, 42, 52 NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_66_n41	E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 42, 48, NR band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_66_n78	E-UTRA Band 3, 34, 39	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	

- NOTE 1: FDL\_low and FDL\_high refer to each frequency band specified in Table 5.5-1 in TS 36.101 [5] or in Table 5.2-1 in TS 38.101-1 [2].
- NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 in TS 36.101 [5] and Table 6.5.3.1-2 in TS 38.101-1 [2] are permitted for each assigned carrier used in the measurement due to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2 MHz + N x Lcrb x 180 kHz), where N is 2, 3, 4, 5 for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.
- NOTE 3: Applicable when co-existence with PHS system operating in 1884.5 1915.7 MHz
- NOTE 4: Void.
- NOTE 5: These requirements also apply for the frequency ranges that are less than F<sub>OOB</sub> (MHz) in Table 6.6.3.1-1, Table 6.6.3.1A-1 in TS 36.101 [5] or in Table 6.5.3.1-1 in TS 38.101-1 [2] from the edge of the channel bandwidth
- NOTE 6: This requirement is applicable for any channel bandwidths within the range 2500 2570 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2560.5 2562.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2552 2560 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 7: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.
- NOTE 8: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink
- NOTE 9: Applicable when the assigned E-UTRA or NR carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz.
- NOTE 10: As exceptions, measurements with a level up to the applicable requirement of -38 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 2nd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 2nd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 11: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 3rd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 3rd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 12: This requirement is applicable only for the following cases: A: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 902.5 MHz ≤ Fc < 907.5 MHz with an uplink transmission bandwidth less than or equal to 20 RB; B: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 907.5 MHz ≤ Fc ≤ 912.5 MHz without any restriction on uplink transmission bandwidth; C: for carriers of 10 MHz channel bandwidth when carrier centre frequency (Fc) is Fc = 910 MHz with an uplink transmission bandwidth less than or equal to 32 RB with RB<sub>start</sub> > 3.
- NOTE 13: Void.
- NOTE 14: This requirement is applicable for 5 and 10 MHz E-UTRA or NR channel bandwidth allocated within 718-728MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RB<sub>start</sub> > 1 and RB<sub>start</sub> < 48.
- NOTE 15: Void
- NOTE 16: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 17: This requirement is applicable in the case of a 10 MHz E-UTRA carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.
- NOTE 18: This requirement is only applicable for E-UTRA carriers with bandwidth confined within 1885 1920 MHz (requirement for carriers with at least 1RB confined within 1880 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for E-UTRA carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1892.5 1894.5 MHz and for E-UTRA carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1895 1903 MHz.
- NOTE 19: Void.
- NOTE 20: Void.
- NOTE 21: Void.

# Table 6.5B.3.3.2.5-3: Requirements for inter-band within FR1 for Rel-17

	Spurious emission							
EN-DC Configuration	Protected band	Frequency range (MHz)	Maximum Level (dBm)	MBW (MHz)	NOTE			

	T ==					1	
DC_1_n3	E-UTRA Band 1, 11, 21, 32,	$F_{DL\_low}$	_	$F_{DL\_high}$	-50	1	
	43, 50, 65, 74, 75						
	NR Band 77, 78	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	2
DC_1_n28	E-UTRA Band 7, 31, 41, 72,						
	73	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	NR Band n79						
	E-UTRA Band 42, 52	$F_{DL\_low}$	_	$F_{DL\_high}$	-50	1	2
	NR Band n77, n78						
	Frequency range	470	-	694	-42	8	5, 17
	Frequency range	470	-	710	-26.2	6	14
DC_1_n77	E-UTRA Band 1, 3, 11, 21,	F <sub>DL low</sub>	_	F <sub>DL_high</sub>	-50	1	
	34, 65, 74						
	Frequency range	1880	-	1895	-40	1	5, 8
	Frequency range	1895	-	1915	-15.5	5	5, 7, 8
	Frequency range	1915	-	1920	1.6	5	5, 7, 8
DC_1_n78	E-UTRA Band 3, 11, 21, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	1880	-	1895	-40	1	5, 8
DC_1_n79	E-UTRA Band 5, 7, 8, 18,	F <sub>DL_low</sub>	_	F <sub>DL_high</sub>	-50	1	
	19, 26, 28, 41	I_DL_low	_	I DL_nign	-50	ı	
DC_2_n5	E-UTRA Band 42, 48	$F_{DL\_low}$		$F_{DL\_high}$	-50	1	
	NR band n77	I DL_low	_	I DL_nign	75	ı	
	E-UTRA Band 41, 43	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_2_n41	E-UTRA Band 12, 13, 14, 17,	F <sub>DL low</sub>	_	FDL high	-50	1	
	28, 29, 42, 71						
	E-UTRA Bands 2	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	5
DC_2_n66	E-UTRA Band 4, 10, 24, 50,	FDL low	_	F <sub>DL_high</sub>	-50	1	
	66, 70, 74						
	E-UTRA Band 2, 25	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	5
	E-UTRA Band 42, 48	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n77	E-UTRA Band 4, 65, 66, 70	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 2, 25	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_2_n71	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_2_n78	E-UTRA Band 24, 50, 51, 74	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	E-UTRA Band 2, 25	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_3_n1	E-UTRA Band 1, 11, 21, 32,				50	4	
	50, 65, 74, 75	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_3_n7	E-UTRA Band 5, 8, 20, 26,	F		F	-50	1	
	27, 28, 44, 67	$F_{DL\_low}$	-	$F_DL\_high$			
	E-UTRA Band 42	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2
DC_3_n28	NR band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_3_n41	E-UTRA Band 5, 8, 20, 26,				50		
	27, 28, 44	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 18, 19	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	14, 20
	E-UTRA Band 42,	F <sub>DL_low</sub>	-	FDL_high	-50	1	2
	NR Band n77, n78, n79	· DL_low		· DL_IIIgII	00		_
DC_3_n77	E-UTRA Band 1, 3, 28, 34,	_		_	-50	1	
50_0_m,	39, 40, 65, 74	$F_{DL\_low}$	-	$F_{DL\_high}$	00		
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n78	E-UTRA Band 3, 34, 39	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
50_0_m	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_3_n79	E-UTRA Band 5, 8, 11, 18,						<u> </u>
DO_0_1170	19, 21, 41, 74	$F_{DL_{low}}$	-	$F_DL\_high$	-50	1	
DC_5_n2	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
D 0_0_112	E-UTRA Band 41, 43						_
	NR Band n77	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_5_n66	E-UTRA Band 5, 6, 7, 8, 38	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
<u> </u>	E-UTRA Band 26	859	-	869	-27	1	
	E-UTRA Band 41, 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	NR Band n77	. DL_IOW		· DL_IIIGII		<u> </u>	
DC_5_n77	E-UTRA Band 2, 4, 25, 30,						
20_0_1177	40, 65, 66, 70	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_5_n78	E-UTRA Band 1, 2, 3, 4, 7,						<u> </u>
20_0_1170	25, 34, 38, 65, 66, 70	$F_DL\_low$	-	$F_DL\_high$	-50	1	
İ	_0, 0., 00, 00, 10		1				

	E-UTRA Band 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2, 7
DC_7_n1	E-UTRA Band 32, 50, 51,						
	75, 76 or NR Band n79	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_7_n3	E-UTRA Band 5, 8, 20, 26,	F <sub>DL low</sub>	_	F <sub>DL high</sub>	-50	1 1	
	27, 28, 67, 68	• DL_low		• DL_nign		'	
	E-UTRA band 42, 52	_			-50	1	2
DO 700	NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	50		
DC_7_n28	E-UTRA Band 3	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1 1	
DO 7 70	NR band n78	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
DC_7_n78	E-UTRA Band 3, 5, 8, 11,	_		_	50	,	
	18, 19, 20, 21, 26, 27, 28,	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
DC 7 x66	32, 50, 51, 67, 68, 74, 75, 76 E-UTRA Band 5, 12, 13, 14,						
DC_7_n66	17, 26, 27, 28, 29, 85	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_8_n1	E-UTRA Band 43 or NR	I DL_IOW	+	I DL_nign	-50	1	
DO_0_III	Band n77, n78, n79	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	2
DC_8_n3	E-UTRA Band 20, 28, 38, 44	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DO_0_110	E-UTRA Band 7, 22, 41, 42,	• DL_IOW		• DL_nign	- 00		
	43 or NR Band n77, n78,				-50	1 1	2
	n79	$F_{DL_{low}}$	_	F <sub>DL high</sub>			_
	Frequency range	860	-	890	-40	1	5, 12
DC_8_n41	E-UTRA Band 28	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	·
	E-UTRA band 3, 42, 52						
	NR Band n77, n78, n79	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	E-UTRA Band 8	$F_{DL_{low}}$	-	F <sub>DL_high</sub>	-50	1	5
	Frequency range	860	-	890	-40	1	5, 12
DC_8_n77	E-UTRA Band 1, 32, 33, 34, 38,	$F_{DL_{low}}$		F <sub>DL_high</sub>	-50	1	
	39, 40,50, 65, 69, 74, 75						
	E-UTRA band 3, 7, 41	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1 1	2
	E-UTRA Band 11, 21	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1 0.2	12
DC_8_n78	Frequency range E-UTRA band 34, 39, 40, 74	1884.5	-	1915.7	-41 -50	0.3	3, 12
DC_0_II/0	E-UTRA Band 3, 7, 41	F <sub>DL_low</sub> F <sub>DL_low</sub>	+ -	F <sub>DL_high</sub> F <sub>DL_high</sub>	-50 -50	1	2
	E-UTRA Band 3, 7, 41	FDL_low	+ -		-50	1 1	12
	Frequency range	1884.5	<del>-</del>	F <sub>DL_high</sub> 1915.7	-41	0.3	3, 12
DC_11_n77	E-UTRA Band 1, 3, 18, 19, 28,						5, 12
DO_11_11/1	34, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_11_n78	E-UTRA Band 1, 3, 18, 19, 28,	F <sub>DL low</sub>	_	F <sub>DL_high</sub>	-50	1	
	34, 40, 65						
DC_11_n79	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_11_n/9	E-UTRA Band 1, 3, 34, 42, 65	F <sub>DL_low</sub> 1884.5	-	F <sub>DL_high</sub> 1915.7	-50 -41	0.3	3
DC_12_n66	Frequency range E-UTRA Band 41, 53	F <sub>DL_low</sub>	<del>-</del>	F <sub>DL_high</sub>	-50	1	<u> </u>
DC_12_1100	NR band n77	FDL_low	<del>-</del>	FDL_high	-50	1	2
DC_12_n78	E-UTRA Band 2, 7, 25, 41	FDL_low	+-	FDL_high	-50	1	
DO_12_11/0	E-UTRA Band 4, 66	FDL_low	+-	FDL_high	-50	1	2
	Frequency range	1884.5	+-	1915.7	-41	0.3	3
DC_13_n2	E-UTRA Band 41	F <sub>DL_low</sub>	+-	F <sub>DL_high</sub>	-50	1	<u> </u>
DC_13_112 DC_13_n66	E-UTRA Band 41, 53	FDL_low	+_	FDL_high	-50	1	
20_10_1100	NR Band n77	F <sub>DL_low</sub>	+	FDL_high	-50	1 1	2
DC_13_n77	E-UTRA Band 2, 4, 10, 25,						
	41, 66, 70	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 30	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	1884.5		1915.7	-41	0.3	3
DC_14_n2	E-UTRA Band 41	F <sub>DL_low</sub>		$F_{DL\_high}$	-50	1	
	NR Band n77	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
DC_14_n66	E-UTRA Band 41		-50	1			
	NR Band n77	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_18_n77	E-UTRA Band 1, 3, 34, 40,	F <sub>DL_low</sub>		F <sub>DL_high</sub>	-50	1	
	65						
	Frequency range	1884.5	-	1915.7	-41	0.3	3

İ	Eroguenov renge	25.45		2575	<b>5</b> 0	1 1	
	Frequency range	2545 2595	-	2575	-50	1 1	
DC_18_n78	Frequency range E-UTRA Band 1, 3, 34, 65		-	2645	-50 -50	1	
DC_18_078		F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50		2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50 -50	1	
DC 40 =4	Frequency range	2595	-	2645	-50	1	
DC_19_n1	E-UTRA Band 42	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	NR Band n79				50	_	
DO 40 = 77	NR Band n77, n78	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_19_n77	E-UTRA Band 1, 3, 34, 40,	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
	65			_	44	0.0	0
	Frequency range	1884.5	-	1915.7	<u>-41</u>	0.3	3
	Frequency range	2545	-	2575	-50	1	
DO 40 70	Frequency range	2595	-	2645	-50	1	
DC_19_n78	E-UTRA Band 1, 3, 34, 65	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	•
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_19_n79	E-UTRA Band 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_20_n1	E-UTRA Band 22, 42, 43	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	NR Band 77, 78	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
DC_20_n3	E-UTRA Band 7, 8	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 38, 42, 52	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	2
DC_20_n28	E-UTRA Band 8	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_20_n78	E-UTRA Band 1, 3, 7, 33, 34, 65	FDL_low	-	FDL_high	-50	1	
	E-UTRA Band 38, 69	FDL_low	-	FDL_high	-50	1	2
DC_21_n1	E-UTRA Band 40, 42	$F_{DL_{low}}$	-	$F_{DL\_high}$	-50	1	
	NR Band n78, n79						
	NR Band n77	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2
	Frequency range	945		960	-50	1	
DC_21_n77	E-UTRA Band 1, 3, 18, 19,	_		_	50	4	
	28, 34, 40, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	Frequency range	945	-	960	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_21_n78	E-UTRA Band 1, 3, 18, 19,					_	
	28, 34, 40, 65	$F_{DL\_low}$	-	$F_DL\_high$	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_21_n79	E-UTRA Band 3, 21, 34, 42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_25_n41	E-UTRA Band 12, 13, 14, 17,						
DO_20_1111	28, 29, 42, 71	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
	NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
DC_26_n41	E-UTRA Band 3, 5, 18, 19, 26,	_		_			
	42	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	Frequency range	799	-	803	-40	1	5
	Frequency range	945	-	960	-50	1	
DC_26_n77	E-UTRA Band 1, 3, 34, 39,	F <sub>DL</sub> low	_	F <sub>DL_high</sub>	-50	1	
	40, 65			-			
	E-UTRA Band 41	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	
	Frequency range	2595	-	2645	-50	1	
DC_26_n78	E-UTRA Band 1, 3, 34, 39, 65	F <sub>DL_low</sub>	-	$F_{DL\_high}$	-50	1	
	E-UTRA Band 41	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	2
	Frequency range	1884.5	-	1915.7	-41	0.3	3
	Frequency range	2545	-	2575	-50	1	2
	Frequency range	2595	-	2645	-50	1	
DC_28_n3	NR Band n77	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	E-UTRA Band 7, 41	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_28A_n77	E-UTRA Band 3, 7, 34, 39, 40,	FDL_low		FDL_high	-50	1	
	41	_		- 0			
	E-UTRA Band 1, 65	FDL_low	-	FDL_high	-50	1	2
ĺ	E-UTRA Band 1	FDL_low 1884.5	-	FDL_high 1915.7	-50 -41	0.3	9, 11 3, 9
	Frequency range	7 8 8 7 6	-				

DC_28_n83_UL_ SUP-TDM_n78  E-UTRA Band 1,65  Fol.bow F	DC 00 =70	E LITPA Dand 2, 7, 24, 20				ı	1	
E-UTRA Band 1	DC_28_n78 DC_28_n83_UL		$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	
DC_28_n79	SUP-TDM_n78	E-UTRA Band 1, 65	$F_{DL\_low}$	-	$F_{DL\_high}$	-50		
DC_28_n79		E-UTRA Band 1	$F_{DL\_low}$	-	$F_{DL\_high}$	-50	1	9, 11
DC_30_n5		Frequency range	1884.5	-	1915.7	-41	0.3	3
DC_39_n41	DC_28_n79	E-UTRA Band 42	FDL_low	-	FDL_high	-50	1	2
NR band n77	DC_30_n5	E-UTRA Band 71	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	
DC_39_n41		NR band n77		-	F <sub>DL_high</sub>	-50	1	2
NR Band n77, n78, n79	DC_39_n41	E-UTRA Band 42, 44	FDL low	-		-50	1	
DC_39_n79		NR Band n77, n78, n79		-		-50	1	2
DC_40_n1	DC_39_n79			-		-50	1	
DC_40_n41		E-UTRA Band 7, 31, 32, 41,		-			1	
NR Band n79	DC 40 n41		FDL low	-	FDL high	-50	1	
Frequency range	DO_10_1111							2
DC_40_n78				+				
NR Band n79	DC_40_n78	E-UTRA Band 5, 8, 11, 18,		_				<u> </u>
DC_41_n77         E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 33, 34, 39, 44, 45, 74         FDL_low         -         FDL_high         -50         1           DC_41_n78         E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 44, 45, 74         FDL_low         -         FDL_high         -50         1           DC_41_n79         E-UTRA Band 1, 3, 5, 8, 9, 18, 19, 26, 28, 34, 40, 44, 65         FDL_low         -         FDL_high         -50         1           DC_48_n5         E-UTRA Band 26, 70         FDL_low         -         FDL_high         -50         1           DC_48_n66         E-UTRA Band 25, 70         FDL_low         -         FDL_high         -50         1           DC_48_n66         E-UTRA Band 2, 25         FDL_low         -         FDL_high         -50         1           DC_66_n2         E-UTRA Band 4, 10, 22, 24, 50, 66, 70, 74         FDL_low         -         FDL_high         -50         1           DC_66_n5         E-UTRA Band 42, 43 NR Band 41, 10, 22, 24, 50, 66, 70, 74         FDL_low         -         FDL_high         -50         1         5           DC_66_n5         E-UTRA Band 5, 6, 7, 8, 26, 38         FDL_low         -         FDL_high         -50         1         2           DC_66_n71         E-UTRA Band 5, 12, 13, 14, 1			_		_ 0			
DC_41_n77         E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 33, 34, 39, 44, 45, 74         FDL_low         -         FDL_high         -50         1           DC_41_n78         E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 44, 45, 74 Fequency range         1884.5         1915.7         -41         0.3         3           DC_41_n79         E-UTRA Band 1, 3, 5, 8, 9, 18, 19, 26, 28, 34, 40, 44, 65         FDL_low         -         FDL_high         -50         1           DC_48_n5         E-UTRA Band 25, 70         FDL_low         -         FDL_high         -50         1           DC_48_n6         E-UTRA Band 25, 70         FDL_low         -         FDL_high         -50         1           DC_48_n6         E-UTRA Band 25, 70         FDL_low         -         FDL_high         -50         1           DC_48_n6         E-UTRA Band 2, 25         FDL_low         -         FDL_high         -50         1           DC_66_n2         E-UTRA Band 4, 10, 22, 24, 50, 66, 70, 74         FDL_low         -         FDL_high         -50         1           DC_66_n5         E-UTRA Band 5, 6, 7, 8, 26, 38         FDL_low         -         FDL_high         -50         1         2           DC_66_n51         E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85         FDL		NR Band n79	$F_{DL\_low}$	-	F <sub>DL_high</sub>	-50	1	2
Frequency range	DC_41_n77	19, 21, 26, 28, 33, 34, 39, 44,		-		-50	1	
DC_41_n78         E-UTRA Band 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 44, 45, 74         Fol_low 1884.5         -         Fol_bigh         -50         1           DC_41_n79         E-UTRA Band 1, 3, 5, 8, 9, 18, 19, 26, 28, 34, 40, 44, 65         Fol_low         -         Fol_high         -50         1           DC_48_n5         E-UTRA Band 25, 70         Fol_low         -         Fol_high         -50         1           DC_48_n6         E-UTRA Band 25, 70         Fol_low         -         Fol_high         -50         1           DC_48_n6         E-UTRA Band 25, 70         Fol_low         -         Fol_high         -50         1           DC_48_n66         E-UTRA Band 2, 57         Fol_low         -         Fol_high         -50         1           DC_66_n2         E-UTRA Band 2, 25         Fol_low         -         Fol_high         -50         1           DC_66_n2         E-UTRA Band 4, 10, 22, 24, 50, 66, 70, 74         Fol_low         -         Fol_high         -50         1           DC_66_n5         E-UTRA Band 5, 6, 7, 8, 26, 38         Fol_low         -         Fol_high         -50         1         2           DC_66_n41         E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85         Fol_low         -         Fol_high			1884.5		1915.7	-41	0.3	3
Frequency range	DC_41_n78	E-UTRA Band 3, 5, 8, 11, 18,		-		-50	İ	-
18, 19, 26, 28, 34, 40, 44, 65			1884.5	-	1915.7	-41	0.3	3
Frequency range	DC_41_n79	E-UTRA Band 1, 3, 5, 8, 9,		-		-50	1	
DC_48_n5         E-UTRA Band 25, 70         F_DL_low Frequency range         -         F_DL_high Foundation         -50         1           DC_48_n66         E-UTRA Band 2, 25         F_DL_low FDL_low FDL_high         -         F_DL_high FDL_high			1884.5	-	1915.7	-41	0.3	3
Frequency range	DC 48 n5			-		-50		
DC_48_n66         E-UTRA Band 2, 25         FDL_low         -         FDL_high         -50         1           DC_66_n2         E-UTRA Band 4, 10, 22, 24, 50, 66, 70, 74         FDL_low         -         FDL_high         -50         1           E-UTRA Band 2, 25         FDL_low         -         FDL_high         -50         1         5           E-UTRA Band 42, 43 NR Band n77         FDL_low         -         FDL_high         -50         1         2           DC_66_n5         E-UTRA Band 5, 6, 7, 8, 26, 38         FDL_low         -         FDL_high         -50         1         2           E-UTRA Band 41, 42, 52 NR Band n77         FDL_low         -         FDL_high         -50         1         2           DC_66_n41         E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85         FDL_low         -         FDL_high         -50         1         2           DC_66_n77         E-UTRA Band 2, 4, 12, 13, 14, 17, 29, 30, 65, 66, 70, 71         FDL_low         -         FDL_high         -50         1         2           DC_66_n77         E-UTRA Band 2, 4, 12, 13, 14, 17, 29, 30, 65, 66, 70, 71         FDL_low         -         FDL_high         -50         1         2				-		-41	0.3	3
DC_66_n2         E-UTRA Band 4, 10, 22, 24, 50, 66, 70, 74         FDL_low         -         FDL_high         -50         1           E-UTRA Band 2, 25         FDL_low         -         FDL_high         -50         1         5           E-UTRA Band 42, 43 NR Band n77         FDL_low         -         FDL_high         -50         1         2           DC_66_n5         E-UTRA Band 5, 6, 7, 8, 26, 38         FDL_low         -         FDL_high         -50         1         2           E-UTRA Band 41, 42, 52 NR Band n77         FDL_low         -         FDL_high         -50         1         2           DC_66_n41         E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85         FDL_low         -         FDL_high         -50         1         2           DC_66_n77         E-UTRA Band 42, 48, NR band n77         FDL_low         -         FDL_high         -50         1         2           DC_66_n77         E-UTRA Band 2, 4, 12, 13, 14, 17, 29, 30, 65, 66, 70, 71         FDL_low         -         FDL_high         -50         1         2	DC 48 n66		F <sub>DL</sub> low	-	FDL high	-50		
E-UTRA Band 2, 25		E-UTRA Band 4, 10, 22, 24,		-		-50	1	
E-UTRA Band 42, 43 NR Band n77  DC_66_n5  E-UTRA Band 5, 6, 7, 8, 26, 38  E-UTRA Band 41, 42, 52 NR Band n77  DC_66_n41  E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85  E-UTRA Band 42, 48, NR band n77  DC_66_n77  E-UTRA Band 2, 4, 12, 13, 14, 17, 29, 30, 65, 66, 70, 71  FDL_low  - FDL_high  -50  1  2  DC_66_n77  FDL_high  -50  1  2  DC_66_n77  FDL_high  -50  1  2			FDL low	-	FDL high	-50	1	5
DC_66_n5         E-UTRA Band 5, 6, 7, 8, 26, 38         FDL_low         -         FDL_high         -50         1           E-UTRA Band 41, 42, 52 NR Band n77         FDL_low         -         FDL_high         -50         1         2           DC_66_n41         E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85         FDL_low         -         FDL_high         -50         1         -50         1           E-UTRA Band 42, 48, NR band n77         FDL_low         -         FDL_high         -50         1         2           DC_66_n77         E-UTRA Band 2, 4, 12, 13, 14, 17, 29, 30, 65, 66, 70, 71         FDL_low         -         FDL_high         -50         1         2		E-UTRA Band 42, 43		-				
E-UTRA Band 41, 42, 52 NR Band n77  DC_66_n41  E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85  E-UTRA Band 42, 48, NR band n77  DC_66_n77  E-UTRA Band 2, 4, 12, 13, 14, 17, 29, 30, 65, 66, 70, 71  FDL_low  - FDL_high  -50 1 2  DC_high -50 1 2	DC_66_n5	E-UTRA Band 5, 6, 7, 8, 26,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_66_n41       E-UTRA Band 5, 12, 13, 14, 17, 26, 27, 28, 29, 43, 85       FDL_low       -       FDL_high       -50       1         E-UTRA Band 42, 48, NR band n77       FDL_low       -       FDL_high       -50       1       2         DC_66_n77       E-UTRA Band 2, 4, 12, 13, 14, 17, 29, 30, 65, 66, 70, 71       FDL_low       -       FDL_high       -50       1       2		E-UTRA Band 41, 42, 52	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
E-UTRA Band 42, 48, NR band n77  DC_66_n77  E-UTRA Band 2, 4, 12, 13, 14, 17, 29, 30, 65, 66, 70, 71  FDL_low  - FDL_high  -50  1  2	DC_66_n41	E-UTRA Band 5, 12, 13, 14,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
DC_66_n77		E-UTRA Band 42, 48,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	2
	DC_66_n77	E-UTRA Band 2, 4, 12, 13,	F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	
	DC_66_n78		F <sub>DL_low</sub>	-	F <sub>DL_high</sub>	-50	1	

- NOTE 1: F<sub>DL\_low</sub> and F<sub>DL\_high</sub> refer to each frequency band specified in Table 5.5-1 in TS 36.101 [4] or in Table 5.2-1 in TS 38.101-1 [2].
- NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 in TS 36.101 [4] and Table 6.5.3.1-2 in TS 38.101-1 [2] are permitted for each assigned carrier used in the measurement due to 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2 MHz + N x Lcrb x 180 kHz), where N is 2, 3, 4, 5 for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> or 5<sup>th</sup> harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.
- NOTE 3: Applicable when co-existence with PHS system operating in 1884.5 1915.7 MHz
- NOTE 4: Void
- NOTE 5: These requirements also apply for the frequency ranges that are less than F<sub>OOB</sub> (MHz) in Table 6.6.3.1-1, Table 6.6.3.1A-1 in TS 36.101 [4] or in Table 6.5.3.1-1 in TS 38.101-1 [2] from the edge of the channel bandwidth.
- NOTE 6: This requirement is applicable for any channel bandwidths within the range 2500 2570 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2560.5 2562.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2552 2560 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 7: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.
- NOTE 8: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink
- NOTE 9: Applicable when the assigned E-UTRA or NR carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz.
- NOTE 10: As exceptions, measurements with a level up to the applicable requirement of -38 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 2<sup>nd</sup> harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 2nd harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 11: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 3<sup>rd</sup> harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 3<sup>rd</sup> harmonic totally or partially overlaps the measurement bandwidth (MBW).
- NOTE 12: This requirement is applicable only for the following cases: A: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 902.5 MHz ≤ Fc < 907.5 MHz with an uplink transmission bandwidth less than or equal to 20 RB; B: for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 907.5 MHz ≤ Fc ≤ 912.5 MHz without any restriction on uplink transmission bandwidth; C: for carriers of 10 MHz channel bandwidth when carrier centre frequency (Fc) is Fc = 910 MHz with an uplink transmission bandwidth less than or equal to 32 RB with RB<sub>start</sub> > 3.
- NOTE 13: Void
- NOTE 14: This requirement is applicable for 5 and 10 MHz E-UTRA or NR channel bandwidth allocated within 718-728MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RB<sub>start</sub> > 1 and RB<sub>start</sub> < 48.
- NOTE 15: Void
- NOTE 16: This requirement is applicable for any channel bandwidths within the range 1920 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 1938 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.
- NOTE 17: This requirement is applicable in the case of a 10 MHz E-UTRA or NR carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.
- NOTE 18: This requirement is only applicable for E-UTRA carriers with bandwidth confined within 1885 1920 MHz (requirement for carriers with at least 1RB confined within 1880 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for E-UTRA carriers of 15 MHz bandwidth when carrier center frequency is within the range 1892.5 1894.5 MHz and for E-UTRA carriers of 20 MHz bandwidth when carrier center frequency is within the range 1895 1903 MHz.
- NOTE 19: Void
- NOTE 20: Void.
- NOTE 21: Void
- NOTE 22: This requirement is applicable for power class 3 UE for any channel bandwidths within the range 2570 2615 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the

range 2605.5 - 2607.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2597 - 2605 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.

# 6.5B.3.3a Inter-band NE-DC within FR1

# 6.5B.3.3a.1 General Spurious Emissions for Inter-band NE-DC within FR1

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 6.5.3.1 and 6.5A.3.1 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.6.3.1 and 6.6.3.1A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 6.5B.3.3a.2 Spurious emission band UE co-existence for Inter-band NE-DC within FR1

**FFS** 

# 6.5B.3.4 Spurious Emissions for Inter-band including FR2

Editor's note: This clause is complete for Band n257, n258, n260 and n261. The following aspects are either missing or not yet determined:

The referred test case 6.5.3 in TS 38.521-2 [9] is incomplete for frequency above 80 GHz.

# 6.5B.3.4.1 General Spurious Emissions for Inter-band including FR2 (1 NR CC)

# 6.5B.3.4.1.1 Test purpose

Same test purpose as in clause 6.5.3.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

# 6.5B.3.4.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.4.

# 6.5B.3.4.1.4 Test description

### 6.5B.3.4.1.4.1 Initial conditions

Same test description as in clause 6.5.3.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.5.3.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.3.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.3.1.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.1.5 Test requirement

Same test requirement as in clause 6.5.3.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1a General Spurious Emissions with Power Boost for Inter-band including FR2 (1 NR CC)

#### 6.5B.3.4.1a.1 Test purpose

Same test purpose as in clause 6.5.3.1\_1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1a.2 Test applicability

This test case applies to all types of NR UE release 16 and forward supporting *mpr-PowerBoost-FR2-r16* UE capability, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

## 6.5B.3.4.1a.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.1\_1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.4.

# 6.5B.3.4.1a.4 Test description

Same test description as in clause 6.5.3.1\_1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.5.3.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- $2.1\,\mathrm{The}$  parameter settings for E-UTRA cell are set up according to TS  $36.508\,[11]$  clause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause  $6.2.4\_1.4$  in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.3.1.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.1a.5 Test requirement

Same test requirement as in clause 6.5.3.1\_1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1\_1 General Spurious emissions for Inter-band EN-DC including FR2 (>1 NR CC)

## 6.5B.3.4.1 1.1 General Spurious emissions for Inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.1.1 in TS 38.521-2 [9] is incomplete for:
  - Bands other than n257, n258, n260 and n261
  - Power classes 1, 2 and 4

for PC1, PC2 and PC4

# 6.5B.3.4.1\_1.1.1 Test purpose

Same test purpose as in clause 6.5.3.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

#### 6.5B.3.4.1\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.3.4.

## 6.5B.3.4.1\_1.1.4 Test description

#### 6.5B.3.4.1 1.1.4.1 Initial condition

Same test description as in clause 6.5A.3.1.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 6.5B.3.4.1\_1.1.5 Test Requirements

Same test requirement as in clause 6.5A.3.1.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1\_1.2 General Spurious emissions for Inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.1.2 in TS 38.521-2 [9] is incomplete for:
  - Bands other than n257, n258, n260 and n261
  - Power classes 1, 2 and 4

for PC1, PC2 and PC4

## 6.5B.3.4.1 1.2.1 Test purpose

Same test purpose as in clause 6.5.3.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.3.4.1\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

# 6.5B.3.4.1\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.3.4.

## 6.5B.3.4.1\_1.2.4 Test description

## 6.5B.3.4.1\_1.2.4.1 Initial condition

Same test description as in clause 6.5A.3.1.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.1.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.1.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.1.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.1\_1.2.5 Test Requirements

Same test requirement as in clause 6.5A.3.1.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1\_1.3 General Spurious emissions for Inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.1.3 in TS 38.521-2 [9] is incomplete for:
  - Bands other than n257, n258, n260 and n261
  - Power classes 1, 2 and 4

for PC1, PC2 and PC4

## 6.5B.3.4.1 1.3.1 Test purpose

Same test purpose as in clause 6.5.3.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.3.4.1\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

# 6.5B.3.4.1\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.3.4.

## 6.5B.3.4.1\_1.3.4 Test description

## 6.5B.3.4.1\_1.3.4.1 Initial condition

Same test description as in clause 6.5A.3.1.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.1.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.1.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.1.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.1\_1.3.5 Test Requirements

Same test requirement as in clause 6.5A.3.1.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1\_1.4 General Spurious emissions for Inter-band EN-DC including FR2 (5 NR CCs)

Editor's note: The test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.1.4 in TS 38.521-2 [9] is incomplete for:
  - Bands other than n257, n258, n260 and n261
  - Power classes 1, 2 and 4
- Measurement Uncertainties and Test Tolerances is incomplete.

# 6.5B.3.4.1\_1.4.1 Test purpose

Same test purpose as in clause 6.5.3.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.3.4.1\_1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5 NR UL CCs.

# 6.5B.3.4.1\_1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.4.

#### 6.5B.3.4.1 1.4.4 Test description

## 6.5B.3.4.1\_1.4.4.1 Initial condition

Same test description as in clause 6.5A.3.1.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.5B.3.4.1 1.4.5 Test Requirements

Same test requirement as in clause 6.5A.3.1.4.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1\_1.5 General Spurious emissions for Inter-band EN-DC including FR2 (6 NR CCs)

Editor's note: The test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.1.5 in TS 38.521-2 [9] is incomplete for:
  - Bands other than n257, n258, n260 and n261
  - Power classes 1, 2 and 4
- Measurement Uncertainties and Test Tolerances is incomplete.

#### 6.5B.3.4.1 1.5.1 Test purpose

Same test purpose as in clause 6.5.3.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.3.4.1\_1.5.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 6 NR UL CCs.

# 6.5B.3.4.1\_1.5.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.4.

#### 6.5B.3.4.1\_1.5.4 Test description

## 6.5B.3.4.1\_1.5.4.1 Initial condition

Same test description as in clause 6.5A.3.1.5.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 6.5B.3.4.1 1.5.5 Test Requirements

Same test requirement as in clause 6.5A.3.1.5.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1\_1.6 General Spurious emissions for Inter-band EN-DC including FR2 (7 NR CCs)

Editor's note: The test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.1.6 in TS 38.521-2 [9] is incomplete for:
  - Bands other than n257, n258, n260 and n261
  - Power classes 1, 2 and 4
- Measurement Uncertainties and Test Tolerances is incomplete.

#### 6.5B.3.4.1 1.6.1 Test purpose

Same test purpose as in clause 6.5.3.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.3.4.1\_1.6.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 7 NR UL CCs.

# 6.5B.3.4.1\_1.6.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.4.

#### 6.5B.3.4.1 1.6.4 Test description

## 6.5B.3.4.1\_1.6.4.1 Initial condition

Same test description as in clause 6.5A.3.1.6.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.1\_1.6.5 Test Requirements

Same test requirement as in clause 6.5A.3.1.6.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1\_1.7 General Spurious emissions for Inter-band EN-DC including FR2 (8 NR CCs)

Editor's note: The test case is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.1.7 in TS 38.521-2 [9] is incomplete for:
  - Bands other than n257, n258, n260 and n261
  - Power classes 1, 2 and 4
- Measurement Uncertainties and Test Tolerances is incomplete.

#### 6.5B.3.4.1 1.7.1 Test purpose

Same test purpose as in clause 6.5.3.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.3.4.1\_1.7.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 8 NR UL CCs.

# 6.5B.3.4.1\_1.7.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.4.

#### 6.5B.3.4.1\_1.7.4 Test description

## 6.5B.3.4.1\_1.7.4.1 Initial condition

Same test description as in clause 6.5A.3.1.7.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.1.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.1.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.1\_1.7.5 Test Requirements

Same test requirement as in clause 6.5A.3.1.7.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.1D General Spurious Emissions for inter-band EN-DC including FR2 for UL MIMO

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 6.5D.3 in TS 38.521-2 [9] is incomplete

#### 6.5B.3.4.1D.1 Test purpose

Same test purpose as in clause 6.5D.3.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.3.4.1D.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC FR2.

#### 6.5B.3.4.1D.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5D.3.1 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.5B.3.4.

# 6.5B.3.4.1D.4 Test Description

Same test description as in clause 6.5D.3.1 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 6.5D.3.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5D.3.1 in TS 38.521-2 [9] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 6.5B.3.4.1D.5 Test Requirement

Same test requirement as specified in clause 6.5D.3.1.5 of TS 38.521-2 [9] for the NR carrier(s).

# 6.5B.3.4.2 Spurious emission band UE co-existence for Inter-band including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

The referred test case 6.5.3.2 in TS 38.521-2 [9] is incomplete for PC1, PC2 and PC4.

# 6.5B.3.4.2.1 Test purpose

Same test purpose as in clause 6.5.3.2.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

# 6.5B.3.4.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.4.1.

# 6.5B.3.4.2.4 Test description

Same Test description as in clause 6.5.3.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 6.5.3.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.3.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.3.2.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.2.5 Test requirement

Same Test requirement as in clause 6.5.3.2.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.2a Spurious emission band UE co-existence with Power Boost for Inter-band including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

The referred test case 6.5.3.2\_1 in TS 38.521-2 [9] is incomplete for PC1, PC2 and PC4.

## 6.5B.3.4.2a.1 Test purpose

Same test purpose as in clause 6.5.3.2 1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.2a.2 Test applicability

This test case applies to all types of NR UE release 16 and forward supporting *mpr-PowerBoost-FR2-r16* UE capability, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

# 6.5B.3.4.2a.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.2\_1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.3.4.1.

# 6.5B.3.4.2a.4 Test description

Same Test description as in clause 6.5.3.2\_1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 6.5.3.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2.4 1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.3.2\_1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.2a.5 Test requirement

Same Test requirement as in clause 6.5.3.2\_1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.2\_1 Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (>1 NR CC)

6.5B.3.4.2\_1.1 Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.2.1 in TS 38.521-2 [9] is incomplete for:
  - Testability and relaxation of the requirement for Bands other than n257, n258, n260 and n261
  - MU and TT for Power classes 1, 2 and 4
  - TP analysis

## 6.5B.3.4.2\_1.1.1 Test purpose

Same test purpose as in clause 6.5.3.2 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.2\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR UL CCs.

#### 6.5B.3.4.2\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.2 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.3.2.

6.5B.3.4.2\_1.1.4 Test description

6.5B.3.4.2\_1.1.4.1 Initial condition

Same test description as in clause 6.5A.3.2.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.2\_1.1.5 Test Requirements

Same test requirement as in clause 6.5A.3.2.1.5 in TS 38.521-2 [9] for the NR carrier.

6.5B.3.4.2\_1.2 Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.2.2 in TS 38.521-2 [9] is incomplete for:
  - Testability and relaxation of the requirement for Bands other than n257, n258, n260 and n261
  - MU and TT for Power classes 1, 2 and 4
  - TP analysis

# 6.5B.3.4.2\_1.2.1 Test purpose

Same test purpose as in clause 6.5.3.2 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.4.2\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR UL CCs.

# 6.5B.3.4.2\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.3.4.

#### 6.5B.3.4.2\_1.2.4 Test description

## 6.5B.3.4.2\_1.2.4.1 Initial condition

Same test description as in clause 6.5A.3.2.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.2.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.2.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.2.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.2\_1.2.5 Test Requirements

Same test requirement as in clause 6.5A.3.2.2.5 in TS 38.521-2 [9] for the NR carrier.

6.5B.3.4.2\_1.3 Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 6.5A.3.2.3 in TS 38.521-2 [9] is incomplete for:
  - Testability and relaxation of the requirement for Bands other than n257, n258, n260 and n261
  - MU and TT for Power classes 1, 2 and 4
  - TP analysis

# 6.5B.3.4.2\_1.3.1 Test purpose

Same test purpose as in clause 6.5.3.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.3.4.2\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR UL CCs.

## 6.5B.3.4.2\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.4B.3.4.

#### 6.5B.3.4.2\_1.3.4 Test description

## 6.5B.3.4.2\_1.3.4.1 Initial condition

Same test description as in clause 6.5A.3.2.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For Initial conditions as in clause 6.5A.3.2.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5A.3.2.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5A.3.2.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.3.4.2\_1.3.5 Test Requirements

Same test requirement as in clause 6.5A.3.2.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.4.4a Additional Spurious Emissions with Power Boost for Inter-band including FR2 (1 NR CC)

Editor's note: This clause is complete for Band n257 and n258 and PC3. The following aspects are either missing or not yet determined:

- The referred test case 6.5.3.3\_1 in TS 38.521-2 [9] is incomplete for frequency above 80 GHz.

# 6.5B.4.4a.1 Test purpose

Same test purpose as in clause 6.5.3.3\_1.1 in TS 38.521-2 [9] for the NR carrier.

## 6.5B.4.4a.2 Test applicability

This test case applies to all types of NR UE release 16 and forward supporting *mpr-PowerBoost-FR2-r16* UE capability, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

# 6.5B.4.4a.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3\_1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.4.5.

# 6.5B.4.4a.4 Test description

Same test description as in clause 6.5.3.3\_1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.5.3.3\_1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.2.4\_1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.3.3\_1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.4.4a.5 Test requirement

Same test requirement as in clause 6.5.3.3 1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.3.5 Spurious emissions for Inter-band including FR1 and FR2

# 6.5B.3.5.1 General Spurious Emissions for Inter-band including FR1 and FR2

# 6.5B.3.5.1.1 Test purpose

Same test purpose as in clause 6.5.3 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.5.3 in TS 38.521-2 [9] for NR FR2 carrier(s).

# 6.5B.3.5.1.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for spurious emissions apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 6.5B.3.

# 6.5B.3.5.2 Spurious emission band UE co-existence for Inter-band including FR1 and FR2

# 6.5B.3.5.2.1 Test purpose

Same test purpose as in clause 6.5.3 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 6.5.3 in TS 38.521-2 [9] for NR FR2 carrier(s).

# 6.5B.3.5.2.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for spurious emissions apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 6.5B.3.

# 6.5B.4 Additional Spurious Emissions for EN-DC

# 6.5B.4.1 Additional Spurious Emissions for Intra-band contiguous EN-DC

# 6.5B.4.1.1 Test purpose

To verify that UE transmitter does not cause unacceptable interference to other channels or other systems in terms of transmitter spurious emissions under the deployment scenarios where additional requirements are specified.

## 6.5B.4.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward supporting intra-band contiguous EN-DC.

#### 6.5B.4.1.3 Minimum conformance requirements

These requirements are specified in terms of an additional spectrum emission requirement. Additional spurious emission requirements are signalled by the network to indicate that the UE shall meet an additional requirement for a specific deployment scenario as part of the cell handover/broadcast message.

NOTE: For measurement conditions at the edge of each frequency range, the lowest frequency of the measurement position in each frequency range should be set at the lowest boundary of the frequency range plus MBW/2. The highest frequency of the measurement position in each frequency range should be set at the highest boundary of the frequency range minus MBW/2. MBW denotes the measurement bandwidth defined for the protected band.

#### 6.5B.4.1.3.1 Minimum requirement (network signalled value "NS 04")

When "NS 04" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5B.4.1.3.1-1. This requirement also applies for the frequency ranges that are less than  $F_{OOB}$  (MHz) in Table 6.5.3.1.3-1 of TS 38.521-1 [8] from the edge of the channel bandwidth.

Frequency band Channel bandwidth / Spectrum Measurement bandwidth (MHz) emission limit (dBm) 2495 ≤ f < 2496 1% of Channel BW for contiguous BW up -13 to 100 MHz, 1 MHz for contiguous BW > 100 MHz  $2490.5 \le f < 2495$ -13 1 MHz 0 < f < 2490.5-25 1 MHz

Table 6.5B.4.1.3.1-1: Additional requirements

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.4.1.1.

Exception requirements for both NR and E-UTRA are defined for this test. LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included, and E-UTRA measurements are performed.

# 6.5B.4.1.4 Test description

#### 6.5B.4.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and subcarrier spacing based on EN-DC operating bands specified in 5.3B.1.2. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing are shown in Table 6.5B.4.1.4.1-1 for both E-UTRA and NR. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2 for NR. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C and in TS 38.521-1 [8] Annex C2 for LTE link and NR link respectively.

Table 6.5B.4.1.4.1-1: EN-DC test configuration table for NS\_04

Initial Conditions							
Normal							
Low range, High range							
Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (Note 2)							
Lowest SCS per Channel Bandwidth							

	1		1	Test Parameters			
					Jplink Configu		
Test ID	Freq		Modulation	TRA Cell RB allocation (Note 5)	Modulation	R Cell RB allocation (Note 1)	Power config (Note 6)
1	Default		16QAM	Outer_Full	DFT-s- OFDM QPSK	Outer_Full	В
2 (Note 3)	Default		16QAM	Outer_1RB_Left	DFT-s- OFDM QPSK	Edge_1RB_Right	В
3 (Note 3) 4	Low		16QAM	Outer_1RB_Left	DFT-s- OFDM QPSK	N/A	А
4 (Note 3) 5	High		16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Right	А
5 (Note 4) 6	Default	Downlink Configuration	16QAM	Outer_1RB_Right	DFT-s- OFDM QPSK	Edge_1RB_Left	В
(Note	Low		16QAM	N/A	DFT-s- OFDM QPSK	Edge_1RB_Left	А
7 (Note 4)	High		16QAM	Outer_1RB_Right	DFT-s- OFDM QPSK	N/A	А
8	Default		16QAM	Outer_Full	CP-OFDM 256QAM	Outer_Full	В
9 (Note 3)	Low		16QAM	Outer_1RB_Left	CP-OFDM 256QAM	Edge_1RB_Right	В
10 (Note 4)	High		16QAM	Outer_1RB_Right	CP-OFDM 256QAM	Edge_1RB_Left	В
11 (Note 4)	Default		16QAM	Edge_Full_Right	CP-OFDM 256QAM	Edge_Full_Left	В

- NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1 in TS 38.521-1 [8].
- NOTE 2: If the UE supports multiple CC combinations in the EN-DC configuration with the same N<sub>RB\_agg</sub>, select the combination to test as follows:
- Lowest ENBW: NR component with lowest N<sub>RB</sub> is tested.
- Highest ENBW: NR component with highest N<sub>RB</sub> is tested.
- NOTE 3: Applicable when E-UTRA cell carrier frequency is lower than NR cell carrier.
- NOTE 4: Applicable when NR cell carrier frequency is lower than E-UTRA cell carrier.
- NOTE 5: Outer\_Full defined as the transmission bandwidth configuration N<sub>RB</sub> per channel bandwidth for the E-UTRA component as indicated in TS 36.521-1 [10] Table 5.4.2-1. Outer\_1RB\_Left defined as 1 RB allocated at the left edge of the E-UTRA component. Outer\_1RB\_Right defined as 1 RB allocated at the right edge of the E-UTRA component.
- NOTE 6: Power config as specified in Table 6.2B.3.1.4.3-1 to 6.2B.3.1.4.3-2 (PC3) or Table 6.2B.3.1.4.3-3 to 6.2B.3.1.4.3-4 (PC2).
- NOTE 7: Test IDs with simultaneous E-UTRA and NR UL transmission only apply for UEs indicating dualPA-Architecture.

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for SS diagram and clause A.3.2.1 for UE diagram.
- 2. The parameter settings for NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 4. E-UTRA downlink signals are initially set up according to Annex C0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0 of TS 36.521-1 [10].
- 5. NR downlink signals are initially set up according to Annex C.0, C.1 and C.2, and uplink signals according to Annex G.0, G.1, G.2, G.3.0 of TS 38.521-1 [8].
- 6. The UL Reference Measurement channels are set according to Table 6.5B.4.1.4.1-1.
- 7. NR propagation conditions are set according to B.0 of TS 38.521-1 [8]. E-UTRA propagation conditions are set according to B.0 of TS 36.521-1 [10].
- 8. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.5B.4.1.4.3.

# 6.5B.4.1.4.2 Test Procedure

- 1. E-UTRA SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 for C\_RNTI to schedule the UL RMC according to Table 6.5B.4.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 2. NR SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 6.5B.4.1.4.1-1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 3. Send continuously uplink power control "up" commands to the UE for both NR and E-UTRA carriers until the UE transmits at its  $P_{UMAX}$  level; allow at least 200 ms starting from the first TPC command in this step for the UE to reach  $P_{UMAX}$  level.
- 4. Measure the mean power of each component carriers for the EN-DC configuration, which shall meet the requirements described in 6.2B.3.1.5.2 depending on NS-values. The period of the measurement shall be at least the continuous duration of one sub-frame.
- 5. Measure the power of the transmitted signal with a measurement filter of bandwidths according to Table 6.5B.4.1.3.1-1. The centre frequency of the filter shall be stepped in contiguous steps according to the same table. The measured power shall be recorded for each step. The measurement period shall capture the active time slots.

# 6.5B.4.1.4.3 Message Contents

Message contents are according to TS 38.508-1 [6] clause 4.6 with the following exceptions for each network signalled value.

# 6.5B.4.1.4.3.1 Message contents exceptions for network signalled value "NS\_04"

1. Information element additionalSpectrumEmission is set to NS\_04. This can be set in *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.5B.4.1.4.3.1-1: Additional Spectrum Emission: Additional spurious emissions test requirement for "NS\_04"

Derivation Path: TS 38.508-1 [6] clause 4.6.3, Table 4.6.3-1					
Information Element	Value/remark	Comment	Condition		
additionalSpectrumEmission	1 (NS_04)				

# Table 6.5B.4.1.4.3.1-2: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8					
Information Element	Value/remark	Comment	Condition		
p-MaxEUTRA-r15	23		Power Class 2 UE AND simultaneous E- UTRA and NR transmission		
	20		Power Class 3 UE AND simultaneous E- UTRA and NR transmission		

## Table 6.5B.4.1.4.3.1-3: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106					
Information Element	Value/remark	Comment	Condition		
p-NR-FR1	23		Power Class 2 UE AND simultaneous E- UTRA and NR transmission		
	20		Power Class 3 UE AND simultaneous E- UTRA and NR transmission		

## 6.5B.4.1.5 Test Requirement

Test requirements for additional spurious emissions for intra-band contiguous EN-DC are the same as the minimum requirements described in clause 6.5B.4.1.3 and are not repeated in this clause.

# 6.5B.4.2 Additional Spurious Emissions for Intra-band non-contiguous EN-DC

## 6.5B.4.2.1 Test purpose

Same minimum conformance requirements as in clause 6.5B.4.1.1.

# 6.5B.4.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC.

# 6.5B.4.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5B.4.1.3.

#### 6.5B.4.2.4 Test description

#### 6.5B.4.2.4.1 Initial conditions

Same initial conditions as described in clause 6.5B.4.1.4.1 for both E-UTRA and NR carriers with the following exception:

- 1. For each EN-DC combination specified in Table 5.3B.1.3-1, channel spacing between NR and E-UTRA is specified according to clause 5.4B.1.
- 2. Set up the NR and E-UTRA test frequencies so that NR carrier is located at the lower frequency side as specified in Table 5.3B.1.3-1. Repeat each testing with E-UTRA carrier frequency is located at the lower side as specified in Table 5.3B.1.3-1.

# 6.5B.4.2.4.2 Test Procedure

Same test procedure as described in clause 6.5B.4.1.4.2.

## 6.5B.4.2.4.3 Message Contents

Message contents are according to TS 38.508-1 [6] clause 4.6 with the following exceptions for each network signalled value.

#### 6.5B.4.2.4.3.1 Message contents exceptions for network signalled value "NS 04"

1. Information element additionalSpectrumEmission is set to NS\_04. This can be set in *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.5B.4.2.4.3.1-1: AdditionalSpectrumEmission: Additional spurious emissions test requirement for "NS\_04"

Derivation Path: TS 38.508-1 [6] clause 4.6.3, Table 4.6.3-1						
Information Element	Value/remark	Comment	Condition			
additionalSpectrumEmission	1 (NS_04)					

#### 6.5B.4.2.5 Test Requirement

Test requirements for Spurious Emissions for intra-band non-contiguous EN-DC are the same as the minimum requirements described in 6.5B.4.2.3 and are not repeated in this clause.

# 6.5B.4.3 Additional Spurious Emissions for Inter-band EN-DC within FR1 (1 NR CC)

# 6.5B.4.3.1 Test purpose

Same test purpose as in clause 6.5.3.3.1 in TS 38.521-1 [8] for the NR carrier.

# 6.5B.4.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward supporting inter-band EN-DC within FR1 with 1 NR UL.

#### 6.5B.4.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 6.5B.4.3.4 Test description

Same test description as in clause 6.5.3.3.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.5.3.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.3.3.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.5.3.3.4.2 in TS 38.521-1 [8].

# 6.5B.4.3.5 Test Requirement

Same test requirement as in clause 6.5.3.3.5 in TS 38.521-1 [8] for the NR carrier.

# 6.5B.4.4 Additional Spurious Emissions for Inter-band including FR2 (1 NR CC)

Editor's note: This clause is complete for Band n257 and n258 and PC3. The following aspects are either missing or not yet determined:

- The referred test case 6.5.3 in TS 38.521-2 [9] is incomplete for frequency above 80 GHz.

## 6.5B.4.4.1 Test purpose

Same test purpose as in clause 6.5.3.3.1 in TS 38.521-2 [9] for the NR carrier.

#### 6.5B.4.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

# 6.5B.4.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.5.3.3.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5B.4.5.

#### 6.5B.4.4.4 Test description

Same test description as in clause 6.5.3.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1.

For Initial conditions as in clause 6.5.3.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.3.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.5.3.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 6.5B.4.4.5 Test requirement

Same test requirement as in clause 6.5.3.3.5 in TS 38.521-2 [9] for the NR carrier.

# 6.5B.5 Transmit intermodulation

# 6.5B.5.1 Transmit intermodulation for Intra-band contiguous EN-DC

No test case details are specified. No transmit intermodulation requirements are applied for intra band contiguous EN DC unless otherwise stated as in clause TS 38.101-3 [4] clause 6.5B.5.1.

# 6.5B.5.2 Transmit intermodulation for Intra-band non-contiguous EN-DC

No test case details are specified. No transmit intermodulation requirements are applied for intra band contiguous EN DC unless otherwise stated as in clause TS 38.101-3 [4] clause 6.5B.5.2.

# 6.5B.5.3 Transmit intermodulation for Inter-band EN-DC within FR1 (1 NR CC)

## 6.5B.5.3.1 Test purpose

Same test purpose as in clause 6.5.4 in TS 38.521-1 [8] for the NR carrier.

## 6.5B.5.3.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR UL.

## 6.5B.5.3.3 Minimum conformance requirements

The transmit intermodulation requirement specified in clauses 6.7.1 and 6.7.1A of TS 36.101 [5] and clauses 6.5.4 and 6.5A.4 of TS 38.101-1 [2] apply for each component carrier in E-UTRA bands and NR bands, respectively.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this measurement is TS 38.101-3 [4] clause 6.5B.5.3.

## 6.5B.5.3.4 Test description

Same test description as in clause 6.5.4.4 in TS 38.521-1 [8] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 6.5.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.5.4.4.1 in TS 38.521-1 [8] is replaced by the following two steps:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Same test procedure as in clause 6.5.4.4.2 in TS 38.521-1 [8].

# 6.5B.5.3.5 Test Requirement

The ratio derived in step 6 and 8, shall not exceed the described value in Table 6.5.4.5-1 defined in TS 38.521-1 [8].

# 6.5B.5.3a Transmit Intermodulation for Inter-band NE-DC within FR1

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 6.5.4 and 6.5A.4 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 6.7 and 6.7A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 6.5B.5.4 Transmit intermodulation for Inter-band EN-DC including FR2

# 6.5B.5.5 Transmit intermodulation for Inter-band EN-DC including both FR1 and FR2

# 6.5E Output RF spectrum emissions for V2X operation in FR1

# 6.5E.1 Occupied bandwidth for V2X

# 6.5E.1.0 Minimum conformance requirements

For intra-band V2X, the occupied bandwidth specified in clause 6.6.1G in TS 36.101 [5] and specified in clause 6.5E.1 in TS 38.101-1 [2] apply for each frequency range respectively.

For the inter-band con-current NR V2X operation, the requirements specified in subclause 6.6.1 of TS 36.101 [5] shall apply for the E-UTRA uplink in licensed band and the requirements specified in subclause 6.5E.1 of TS 38.101-1 [2] shall apply for the sidelink in NR Band n47.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5E.1.

# 6.5E.1.1 Occupied bandwidth for intra-band V2X

### 6.5E.1.1.1 Test purpose

Same test purpose as in clause 6.5E.1 in TS 38.521-1 [8].

# 6.5E.1.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.5E.1.0. The requirements in this test case can be well covered in clause 6.6.1G of TS 36.521-1 [10] and clause 6.5E.1 of TS 38.521-1 [8] and don't need to be tested again.

### 6.5E.1.2 Occupied bandwidth for inter-band V2X

# 6.5E.1.2.1 Test purpose

Same test purpose as in clause 6.5E.1 in TS 38.521-1 [8].

### 6.5E.1.2.2 Test applicability

For inter-band V2X operation, no exception requirements are specified for the E-UTRA/NR Uu carrier and E-UTRA/NR SL carrier.

For inter-band V2X configuration with E-UTRA Uu and NR sidelink, the requirements in this test case can be well covered in clause 6.6.1 of TS 36.521-1 [10] for E-UTRA Uu carrier and clause 6.5E.1 of TS 38.521-1 [8] and don't need to be tested again.

# 6.5E.2 Out of band emission for V2X

# 6.5E.2.0 Minimum conformance requirements

For intra-band V2X, out-of-band emissions specified in clause 6.6.2G in TS 36.101 [5] and specified in clause 6.5E.2 in TS 38.101-1 [2] apply for each frequency range respectively.

For the inter-band con-current NR V2X operation, the general SEM/additional SEM requirements and ACLR specified in subclause 6.6.2 of TS 36.101 [5] shall apply for the E-UTRA uplink in licensed band and the general SEM/additional SEM and ACLR requirements specified in subclause 6.5E.2 of TS 38.101-1 [2] shall apply for the sidelink in NR Band n47

The normative reference for this requirement is TS 38.101-3 [4] clause 6.5E.2.

### 6.5E.2.1 Out of band emission for intra-band V2X

### 6.5E.2.1.1 Test purpose

Same test purpose as in clause 6.5E.2 in TS 38.521-1 [8].

### 6.5E.2.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. Given only single switched SL is supported as per clause 6.5E.2.0. The requirements in this test case can be well covered in clause 6.6.2G of TS 36.521-1 [10] and clause 6.5E.2 of TS 38.521-1 [8] and don't need to be tested again.

# 6.5E.2.2 Out of band emission for inter-band V2X

### 6.5E.2.2.1 Test purpose

Same test purpose as in clause 6.5E.2 in TS 38.521-1 [8].

# 6.5E.2.2.2 Test applicability

For inter-band V2X operation, no exception requirements are specified for the E-UTRA/NR Uu carrier and E-UTRA/NR SL carrier.

For inter-band V2X configuration with E-UTRA Uu and NR sidelink, the requirements in this test case can be well covered in clause 6.6.2 of TS 36.521-1 [10] for E-UTRA Uu carrier and clause 6.5E.2 of TS 38.521-1 [8] and don't need to be tested again.

# 6.6B Beam Correspondence for EN-DC

# 6.6B.4 Beam Correspondence for inter-band EN-DC including FR2 (1 NR CC) - EIRP

Editor's note: The following aspects are either missing of not yet determined:

- The associated standalone test 6.6.1 in TS 38.521-2 [9] is incomplete for band n259.

### 6.6B.4.1 Test purpose

Same test purpose as in clause 6.6.1.1 in TS 38.521-2 [9] for the NR carrier.

# 6.6B.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC.

# 6.6B.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.6.1.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.6B.4.

#### 6.6B.4.4 Test description

Same test description as in clause 6.6.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 6.6.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of initial conditions as in clause 6.3.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

### 6.6B.4.5 Test requirements

Same test requirement as in clause 6.6.1.5 in TS 38.521-2 [9] for the NR carrier.

# 6.6B.5 Enhanced Beam Correspondence for inter-band EN-DC including FR2 (1 NR CC) - EIRP

Editor's note: This clause is incomplete. The following aspects are either missing of not yet determined:

The associated standalone test 6.6.2 in TS 38.521-2 [9] is incomplete.

#### 6.6B.5.1 Test purpose

Same test purpose as in clause 6.6.2.1 in TS 38.521-2 [9] for the NR carrier.

# 6.6B.5.2 Test applicability

This test case applies to all types of E-UTRA UE release 16 and forward, supporting inter-band EN-DC including FR2 with 1 NR UL CC and support either CSI-RS or SSB based beam correspondence and do not support beam correspondence without UL beam sweeping.

### 6.6B.5.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 6.6.2.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 6.6B.5.

#### 6.6B.5.4 Test Procedure

Same test description as in clause 6.6.2.5 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 6.6.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of initial conditions as in clause 6.3.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 6.3.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

### 6.6B.5.5 Test Requirements

Same test requirement as in clause 6.6.2.5 in TS 38.521-2 [9] for the NR carrier.

# 7 Receiver characteristics

# 7.1 General

Editor's note: Test configurations/environments that require new spherical scan shall be included in test procedure clause and identifying such scenarios is currently FFS and owned by RAN5.

Unless otherwise stated the receiver characteristics are specified at the antenna connector(s) of the UE for the bands operating on frequency range 1 and over the air of the UE for the bands operating on frequency range 2. The requirements for frequency range 1 and frequency range 2 can be verified separately. For the carrier in frequency range 1, requirements can be verified with NR FR2 link disabled. For the carrier in frequency range 2, requirements can be verified in OTA mode with E-UTRA connecting to the network by OTA without calibration.

For NR FR2 Rx test cases the identified beam peak direction can be stored and reused for a device under test in various configurations/environments for the full duration of device testing as long as beam peak direction is the same.

The requirements defined in this clause are the extra requirements compared with the single carrier requirements defined in TS 38.521-1 [8] and TS 38.521-2 [9].

Unless otherwise stated, the UL and DL reference measurement channels are the same with the configurations specified in TS 38.521-1 [8] and TS 38.521-2 [9].

Unless otherwise stated, requirements for NR receiver written in TS 38.521-1 [8] and TS 38.521-2 [9] apply and are assumed anchor agnostic. Requirements are verified under conditions where anchor resources do not interfere NR operation.

For intra-band EN-DC, the output power is configured as follows:

- One E-UTRA uplink carrier with the output power set to 29dB below  $P_{CMAX\_L,c}$  and the NR band whose downlink is being tested has its uplink carrier output power set to 4dB below  $P_{CMAX\_L,f,c}$ .

- One NR uplink carrier with the output power set to 29dB below P<sub>CMAX\_L,f,c</sub> and the E-UTRA band whose downlink is being tested has its uplink carrier output power set to 4dB below P<sub>CMAX\_L,c</sub>.

For the additional requirements for intra-band non-contiguous EN-DC of two sub-blocks, an in-gap test refers to the case when the interfering signal is located at a negative offset with respect to the assigned lowest channel frequency of the highest sub-block and located at a positive offset with respect to the assigned highest channel frequency of the lowest sub-block.

For the additional requirements for intra-band non-contiguous EN-DC of two sub-blocks, an out-of-gap test refers to the case when the interfering signal(s) is (are) located at a positive offset with respect to the assigned channel frequency of the highest carrier frequency or located at a negative offset with respect to the assigned channel frequency of the lowest carrier frequency.

For the additional requirements for intra-band non-contiguous EN-DC of two sub-blocks with channel bandwidth larger than or equal to 5 MHz, the existing adjacent channel selectivity requirements, in-band blocking requirements (for each case), and narrow band blocking requirements apply for in-gap tests only if the corresponding interferer frequency offsets with respect to the two measured carriers satisfy the following condition in relation to the sub-block gap size  $W_{\rm gap}$  for at least one of the E-UTRA or NR sub-blocks, so that the interferer frequency position does not change the nature of the core requirement tested:

 $Wgap \ge 2 \cdot |FInterferer (offset)| - BWChannel$ 

For the E-UTRA sub-block, the F<sub>Interferer (offset),</sub> for a sub-block with a single component carrier is the interferer frequency offset with respect to carrier as specified in clause 7.5.1, clause 7.6.1 and clause 7.6.3 for the respective requirement in TS 36.521 [10] and BW<sub>Channel.</sub> F<sub>Interferer (offset)</sub> for the E-UTRA sub-block with two or more contiguous component carriers is the interference frequency offset with respect to the carrier adjacent to the gap is specified in clause 7.5.1A, 7.6.1A and 7.6.3A in TS 36.521 [10].

For the NR sub-block, the F<sub>Interferer (offset)</sub>, for a sub-block with a single component carrier is the interferer frequency offset with respect to carrier as specified in clause 7.5, clause 7.6.2 and clause 7.6.4 for the respective requirement in TS 38.521-1 [8] and BW<sub>Channel.</sub>

The interferer frequency offsets for adjacent channel selectivity, each in-band blocking case and narrow-band blocking shall be tested separately with a single in-gap interferer at a time.

Unless otherwise stated, Channel Bandwidth shall be prioritized in the selecting of test points. Subcarrier spacing shall be selected after Test Channel Bandwidth is selected.

For conformance testing involving FR2 test cases in this specification, the UE under test shall be pre-configured with UL Tx diversity schemes disabled to account for single polarization System Simulator (SS) in the test environment. The UE under test may transmit with dual polarization.

- 7.2 Void
- 7.3 Void

# 7.3A Reference sensitivity for CA without EN-DC

# 7.3A.1 General

For NR CA operation NR single carrier and CA operation of REFSENS requirements defined in TS 38.101-1 [2] and TS 38.101-2 [3] apply to all downlink bands part of NR CA configurations listed in Table 5.2A.1-1 unless sensitivity degradation is allowed as defined in clause 7.3A in TS 38.101-3 [4].

A UE which supports inter-band NR CA configuration is allowed to apply each sensitivity degradation for FR1 specified in clause 7.3A.2 TS 38.101-1 [2] and for FR2 specified in clause 7.3A.2 of TS 38.101-2 [3] independently.

# 7.3A.2 Reference sensitivity power level for CA without EN-DC

### 7.3A.2.1 Test purpose

Same test purpose as in clause 7.3.2 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 7.3.2 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 7.3A.2.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for receiver sensitivity power level apply and are tested in TS 38.521-1 [8] clauses 7.3 and 7.3A and TS 38.521-2 [9] clauses 7.3 and 7.3A.

# 7.3A.3 $\Delta R_{IB.c}$ for CA without EN-DC

For the UE which supports inter-band NR CA configuration, the minimum requirement for reference sensitivity in clause 7.3.2 in TS 38.101-1 [2] and clause 7.3.2, 7.3A.2in TS 38.101-2 [3] shall be increased by the amount given in  $\Delta R_{IB,c}$  in Tables below. Unless otherwise stated,  $\Delta R_{IB,c}$  is set to zero.

In case the UE supports more than one of band combinations for CA, SUL or DC, and an operating band belongs to more than one band combinations then

- When the operating band frequency range is  $\leq$  1GHz, the applicable additional  $\Delta R_{IB,c}$  shall be the average value for all band combinations defined in clause 7.3A, 7.3B, 7.3C in this specification and 7.3A, 7.3B in TS 38.101-3 [4], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum  $\Delta R_{IB,c}$  among the different supported band combinations involving such band shall be applied
- When the operating band frequency range is > 1 GHz, the applicable additional  $\Delta R_{\rm IB,c}$  shall be the maximum value for all band combinations defined in clause 7.3A, 7.3B, 7.3C in this specification and 7.3A, 7.3B in TS 38.101-3 [4] for the applicable operating bands.

### 7.3A.3.1 $\Delta R_{IB,c}$ for Inter-band CA between FR1 and FR2 without EN-DC

Unless otherwise stated,  $\Delta R_{IB,c}$  for NR FR1 band and FR2 band of inter-band CA defined in table 5.5A.1-1 is set to zero.

### 7.3A.4 Void

# 7.3B Reference sensitivity level for DC

# 7.3B.1 General

For EN-DC, E-UTRA and NR single carrier, CA, and MIMO operation of REFSENS requirements defined in TS 38.101-1 [2], TS 38.101-2 [3] and TS 36.101 [5] apply to all downlink bands of EN-DC configurations listed in clause 5.5B, unless sensitivity degradation exception is allowed in this clause of this specification, clause 7.3 in TS 38.101-1 [2], clause 7.3 in TS 38.101-2 [3] or cause 7.3 in TS 36.101 [5]. Allowed exceptions specified in this clause also apply to any higher order EN-DC configuration combination containing one of the band combinations that exception is allowed for. Reference sensitivity exceptions are specified by applying maximum sensitivity degradation (MSD) into applicable REFSENS requirement. EN-DC REFSENS requirements shall be met for NR uplink transmissions using QPSK DFT-s-OFDM waveforms as defined in clause 7.3.2 in TS 38.101-1 [2]. Unless otherwise specified UL allocation uses the lowest SCS allowable for a given channel BW. Limits on configured maximum output power for the uplink according to subclause 6.2B.4 shall apply.

In case of interband EN-DC the receiver REFSENS requirements in this clause do not apply for 1.4 and 3 MHz E-UTRA carriers. For the case of inter-band EN-DC with a single carrier per cell group and multi-carrier per cell group, in addition to the E-UTRA and NR single carrier, CA, and MIMO operation of REFSENS requirements defined in TS

38.101-1 [2], TS 38.101-2 [3], and TS 36.101 [5], the REFSENS requirements specified therein also apply with both downlink carriers and both uplink carriers active unless sensitivity exceptions are allowed in this clause of this specification, clause 7.3 in TS 38.101-1 [2] or clause 7.3 in TS 36.101 [5].

For reference sensitivity exception test points where the specified carrier frequency does not correspond to a valid NR-ARFCN, the closest NR-ARFCN as specified in clause 5.4.2 applies.

NOTE: For inter-band EN-DC, the reference sensitivity requirement with both uplink carriers active is allowed to be verified for only a single inter-band EN-DC configuration per NR band.

# 7.3B.2 Reference sensitivity for EN-DC

### 7.3B.2.0 Minimum Conformance Requirements of Reference sensitivity for EN-DC

# 7.3B.2.0.1 Intra-band contiguous EN-DC

For intra-band contiguous EN-DC configurations, the reference sensitivity power level REFSENS is the minimum mean power applied to each one of the UE antenna ports at which the throughput for the carrier(s) of the E-UTRA and NR CGs shall meet or exceed the requirements for the specified E-UTRA and NR reference measurement channels. The reference sensitivity requirements apply with all uplink carriers and all downlink carriers active for EN-DC configuration and Uplink EN-DC configuration listed in Table 5.5B.2-1 and Table 5.5B.3-1, as supported by the UE. For EN-DC configurations where uplink is not available in either the MCG or the SCG or for EN-DC configurations where the UE only supports single uplink operation, reference sensitivity requirements apply with single uplink transmission. The downlink carrier(s) from the cell group with uplink shall be configured closer to the uplink operating band than any of the downlink carriers from the cell group without uplink.

Sensitivity degradation is allowed for Intra-band contiguous EN-DC configurations listed in Table 7.3B.2.0.1-1, the reference sensitivity is defined only for the specific uplink and downlink test points which are specified in Table 7.3B.2.0.1-1 and E-UTRA and NR single carrier requirements do not apply.

Table 7.3B.2.0.1-1: Reference sensitivity (MSD) for intra-band contiguous EN-DC

EN-DC configuration/channel allocations/MSD													
EN-DC configuration	E-UTRA/NR band	F <sub>C</sub> (UL) (MHz)	Channel bandwidth (MHz)	UL allocation (L <sub>CRB</sub> )	F <sub>C</sub> (DL) (MHz)	MSD (dB)	Duplex mode						
DC_(n)71AA	71	665.5	5	5 (RB <sub>end</sub> =24)	619.5	0							
	n71	675.5	15	15 (RB <sub>start</sub> = 0)	629.5	1.8							
DC_(n)71AA	71	670.5	15	15 ( $RB_{end} = 74$ )	624.5	0							
	n71	680.5	5	5 (RB <sub>start</sub> = 0)	634.5	1.6	FDD						
DC_(n)71AA	71	668	10	10 (RB <sub>end</sub> = 49)	622	0	2						
	n71	678	10	10 (RB <sub>start</sub> = 0)	632	1.7							
DC_(n)71AA	71	668	10	10 (RB <sub>start</sub> = 0)	622	17.2							
	n71	678	10	10 (RB <sub>end</sub> = 51)	632	29.4							
DC_(n)71AA	71	665.5	5	5 (RBend =24)	619.5	0							
	n71	675.5	151	15 (RBstart = 0)	6321	2.5							
DC_(n)71AA	71	670.5	15	15 (RBend = 74)	624.5	0							
	n71	680.5	51	5 (RBstart = 0)	6371	2.2	FDD						
DC_(n)71AA	71	668	10	10 (RBend = 49)	622	0							
	n71	678	101	10 (RBstart = 0)	634.51	2.5							
DC_(n)71AA	71	668	10	10 (RBstart = 0)	622	17.2							
	n71	678	101	10 (RBend = 51)	634.51	29.1							

NOTE 1: In accordance to BCS1, the NR uplink bandwidth is specified as in this table, but the corresponding NR downlink bandwidth is 5 MHz larger.

NOTE 2: The transmitters powers shall be set to P<sub>UMAX</sub>, as defined in TS 38.101-1 [2], TS 38.101-2 [3], and TS 36.101 [5], with additional limits on configured maximum output power for the uplink according to subclause 6.2B.4.

# 7.3B.2.0.2 Intra-band non-contiguous EN-DC

For intra-band non-contiguous EN-DC configurations, the reference sensitivity power level REFSENS is the minimum mean power applied to each one of the UE antenna ports at which the throughput for the carrier(s) of the E-UTRA and NR CGs shall meet or exceed the requirements for the specified E-UTRA and NR reference measurement channels.

For DC\_3A\_n3A intra-band non-contiguous EN-DC combination, only single switched UL is supported in rel.15, therefore, no MSD is specified and E-UTRA and NR single carrier requirements apply.

### 7.3B.2.0.3 Inter-band EN-DC within FR1

Reference sensitivity exceptions are specified for the condition when there is uplink transmission only in the aggressor band.

7.3B.2.0.3.1 Reference sensitivity exceptions due to UL harmonic interference for EN-DC in NR FR1

Sensitivity degradation is allowed for a band if it is impacted by UL harmonic interference from another band part of the same EN-DC configuration. Reference sensitivity exceptions for the victim band (high) are specified in Table 7.3B.2.0.3.1-1 with uplink configuration of the aggressor band (low) specified in Table 7.3B.2.0.3.1-2.

Table 7.3B.2.0.3.1-1: Reference sensitivity exceptions (MSD) due to UL harmonic for EN-DC in NR FR1

E-UTRA or NR Band / Channel bandwidth of the affected DL band / MSD														
UL band	DL band	5 MHz (dB)	10 MHz (dB)	15 MHz (dB)	20 MHz (dB)	25 MHz (dB)	30 MHz (dB)	40 MHz (dB)	50 MHz (dB)	60 MHz (dB)	70 MHz (dB)	80 MHz (dB)	90 MHz (dB)	100 MHz (dB)
1, 3	n77 <sup>2, 13</sup>		23.9	22.1	20.9			17.9	16.8	16.0		14.8	14.3	13.8
	n77³		1.1	0.8	0.3									
2	n77 <sup>2, 13</sup>		23.9	22.1	20.9	19.8	19.0	17.9	16.8	16.0	15.5	14.8	14.3	13.8
	n77³		1.1	8.0	0.3	0.1	0	0	0	0	0	0	0	0
2	n78 <sup>2, 13</sup>		23.9	22.1	20.9			17.9	16.8	16.0		14.8	14.3	13.8
2	n78³		1.1	0.8	0.3									
3	n78 <sup>2, 13</sup>		23.9	22.1	20.9			17.9	16.8	16.0		14.8	14.3	13.8
<b>5</b>	n78 <sup>3</sup>		1.1	0.8	0.3									
5	n78 <sup>6,7</sup>		10.5	8.9	7.8			5.4	4.2	3.5		2.3	2.1	1.4
5	n77 <sup>6, 7, 17</sup>		10.5	8.9	7.8	7.2	6.5	5.1	4.2	3.5	2.8	2.3	2.1	1.4
	n77 <sup>4, 5, 17</sup>		10.4	8.9	7.8	6.7	6	4.7	3.7	3	2.3	1.7	1.2	0.7
8	n41 <sup>8,9</sup>		13	11.3	10.1			7.0	6.1	5.5		4.3	3.9	3.5
8	n77 <sup>6,7</sup> n78 <sup>6,7</sup>		10.8	9.1	8			5.1	4.2	3.5		2.3	2.1	1.4
8	n79 <sup>4,5</sup>							6.8	6.2	5.6		4.9		4.4
12	n66 <sup>8,9,10</sup>	10	7.5	6.2	5.5			2.4						
12	n78 <sup>4,5</sup>		10.4	8.9	7.8			4.7	3.7	3		1.7	1.2	0.7
13	n77 <sup>4, 5</sup>		10.4	8.9	7.8	6.7	5.7	4.7	3.7	3	2.3	1.7	1.2	0.7
18, 19	n77 <sup>4,5</sup> n78 <sup>4,5</sup>		10.4	8.9	7.8			4.7	3.7	3		1.7	1.2	0.7
28	n51 <sup>2,13</sup>	27.8												
20	n51³	1.9												
28	n77 <sup>4,5</sup> n78 <sup>4,5</sup>		10.4	8.9	7.8			4.7	3.7	3		1.7	1.2	0.7
20	n77 <sup>6,7</sup> n78 <sup>6,7</sup>		10.8	9.1	8			6	4.0	3.2		2.0	1.5	1.0
26	n41 <sup>8,9</sup>		10.3	8.4	7.4			5	4.3	3.9		3.1	2.7	
26	n77 <sup>6,7</sup> n78 <sup>6,7</sup>		10.8	9.1	8			6	4.0	3.2		2.0	1.5	1.0
n28	<b>1</b> <sup>8,9,10</sup>	10.2	7.6	6.2	5.3									
n71	2 <sup>11</sup>	4.6	1.0	0.7	0.6									
11/ 1	2 <sup>12</sup>	1.7	1.0	0.7	0.6									
n71	<b>7</b> <sup>6,7</sup>	14.6	11.7	10.1	9									
66	n77 <sup>2, 13</sup>		23.9	22.1	20.9	19.8	19.0	17.9	16.8	16.0	15.3	14.8	14.3	13.8
	n77³		1.1	0.8	0.3	0.1	0	0	0	0	0	0	0	0
66	n78 <sup>2, 13</sup>		23.9	22.1	20.9			17.9	16.8	16.0		14.8	14.3	13.8
66	n78³		1.1	0.8	0.3									
nee	48 <sup>2,13</sup>	27.3	24.4	22.4	21.2									
n66	48 <sup>3</sup>	1.9	1.4	0.9	0.4									

- NOTE 1: Void.
- NOTE 2: The requirements should be verified for UL EARFCN or NR ARFCN of the aggressor (lower) band (superscript LB) such that  $f_{UL}^{LB} = \lfloor f_{DL}^{HB}/0.2 \rfloor 0.1$  in MHz and  $F_{UL\_low}^{LB} + BW_{Channel}^{LB}/2 \le f_{UL}^{LB} \le F_{UL\_high}^{LB} BW_{Channel}^{LB}/2$  with carrier frequency in the victim (higher) band in MHz and the channel bandwidth configured in the lower band.

  NOTE 3: The requirements are only applicable to channel bandwidths no larger than 20 MHz and with a carrier frequency at
- $\pm \left(20 + BW_{\it Channel}^{\it HB}\ / 2\right)$  MHz offset from  $^2f_{\it UL}^{\it LB}$  in the victim (higher band) with  $F_{UL\_low}^{\ LB} + BW_{Channel}^{\ LB} \ / \ 2 \le f_{UL\_high}^{\ LB} \le F_{UL\_high}^{\ LB} - BW_{Channel}^{\ LB} \ / \ 2 \ , \ \text{where} \quad BW_{Channel}^{\ LB} \quad \text{and} \quad BW_{Channel}^{\ HB} \quad \text{are the channel bandwidths}$ configured in the aggressor (lower) and victim (higher) bands in MHz, respectively.
- These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 5th transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band.
- These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 4th transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band.
- NOTE 7: The requirements should be verified for UL EARFCN of the aggressor (lower) band (superscript LB) such that
- band for which the 3rd transmitter harmonic is within the downlink transmission bandwidth of a high band.
- The requirements should be verified for UL EARFCN of the aggressor (lower) band (superscript LB such that  $f_{UL}^{LB} = \left[ f_{DL}^{HB} / 0.3 \right] 0.1$  in MHz and  $F_{UL\_low}^{LB} + BW_{Channel}^{LB} / 2 \le f_{UL\_high}^{LB} - BW_{Channel}^{LB} / 2$  with  $f_{DL}^{HB}$  the carrier frequency in the victim (higher) hand in All 1. victim (higher) band in MHz and the channel bandwidth configured in the low band.
- NOTE 10: Applicable for the operations with 2 or 4 antenna ports supported in the band with carrier aggregation configured.
- NOTE 11: These requirements apply when the lower edge frequency of the 5 MHz uplink channel in Band 71 is located at or below 668 MHz and the downlink channel in Band 2 is located with its upper edge at 1990 MHz.
- NOTE 12: These requirements apply when the lower edge frequency of the 10 MHz, 15 MHz, or 20 MHz uplink channel in Band 71 is located at or below 668 MHz and the downlink channel in Band 2 is located with its upper edge at 1990 MHz.
- NOTE 13: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 2nd transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band and a range  $\Delta F_{HD}$  above and below the edge of this downlink transmission bandwidth. The value  $\Delta F_{HD}$ depends on the EN-DC band combination:  $\Delta F_{HD} = 10$  MHz for DC\_1\_n77, DC\_2\_n48, DC\_2\_n77, DC\_48\_n66, DC\_66\_n48, DC\_66\_n77, DC\_3\_n77, DC\_3\_n78, DC\_66\_n78, and DC\_25\_n77.
- NOTE 14: No requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the low band for which the 2nd transmitter harmonic is within the downlink transmission bandwidth of the high band. The reference sensitivity for all active downlink component carriers is only verified when this is not the case (the requirements specified in clause 7.3.1 from TS 36.101-1 apply unless otherwise specified).
- NOTE 15: MSD test point can be chosen according to supported BW and lowest SCS supported by the UE.
- NOTE 16: The frequency range in band n28 is restricted for this band combination to 728 738 MHz for the UL. This band is subject to 2<sup>nd</sup> harmonic fall in B21 also which MSD is not specified.
- NOTE 17: For a UE which supports this band combination only when the Band n77 frequency range restriction defined in NOTE 12 of Table 5.2-1 from TS 38.101-1 applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.

Table 7.3B.2.0.3.1-2: Uplink configuration for reference sensitivity exceptions due to UL harmonic interference for EN-DC in NR FR1

E-U	E-UTRA or NR Band / Channel bandwidth of the affected DL band / UL RB allocation of the aggressor band														
UL ban d	DL ban d	S of Land (k.)	5 MHz (Lcr в)	10 MHz (Lcr B)	15 MHz (Lcr B)	20 MHz (Lcr B)	25 MHz (Lcr B)	30 MHz (Lcr в)	40 MHz (Lcr в)	50 MHz (Lcr в)	60 MHz (Lcr B)	70 MHz (Lcr в)	80 MHz (Lcr B)	90 MHz (Lcr в)	100 MHz (Lcr в)
1	n77	<b>z)</b> 15		25	36	50			100	100	100		100	100	100
2	n77	15		25	36	50	50	50	50	50	50	50	50	50	50
2	n78	15		25	36	50			50	50	50		50	50	50
3	n77	15		25	36	50			50	50	50		50	50	50
3	n78	15		25	36	50			50	50	50		50	50	50
5	n77	15		16	25	25	25	25	25	25	25	25	25	25	25
5	n78	15	8	16	25	25			25						
8	n41	15		16	25	25			25	25	25		25	25	25
8	n77 n78	15		16	25	25			25	25	25		25	25	25
8	n79	15							25	25	25		25		25
12	n66	15	8	16	20	20			20						
12	n78	15		10	15	20			25	25	25		25	25	25
13	n77	15		15	20	20	20	20	20	20	20	20	20	20	20
18	n77 , n78	15		16	25	25			25	25	25		25	25	25
19	n77 , n78	15		16	25	25			25	25	25		25		25
20	n77 n78	15		16	25	25 <sup>1</sup> , 25 <sup>2</sup>			25	25	25		25	25	25
26	n41	15		16	25	25			25	25					
26	n77 n78	15		16	25	25			25	25	25		25	25	25
n28	1	15	8	16	25	25									
28	n51	15	12												
28	n77 n78	15		10	-15	20			25	25	25		25	25	25
66	n77	15		25	36	50	64	80	100	100	100	100	100	100	100
66	n78	15		25	36	50			100	100	100		100	100	100
n66	48	15	12	25	36	50									
n71	2	15	25 <sup>4</sup> 8 <sup>5</sup>	25 <sup>4</sup> 8 <sup>5</sup>	20 <sup>4</sup> 8 <sup>5</sup>	20 <sup>4</sup> 8 <sup>5</sup>									
n71	7	15	8	16	25	25									

NOTE 1: The UL configuration applies regardless of the channel bandwidth of the UL band unless the UL resource blocks exceed that specified in Table 7.3.1-2 in TS 36.101 [5] or Table 7.3.2-3 in TS 38.101-1 [2] for the uplink bandwidth in which case the allocation according to Table 7.3.1-2 in TS 36.101 [5] or Table 7.3.2-3 in TS 38.101-1 [2] applies.

NOTE 2: Void.

NOTE 3: Unless stated otherwise, UL resource blocks shall be centred within the transmission bandwidth configuration for the channel bandwidth.

NOTE 4: These requirements apply when the lower edge frequency of the 5 MHz uplink channel in Band 71 is located at or below 668 MHz and the downlink channel in Band 2 is located with its upper edge at 1990 MHz.

NOTE 5: These requirements apply when the lower edge frequency of the 10 MHz, 15 MHz, or 20 MHz uplink channel in Band 71 is located at or below 668 MHz and the downlink channel in Band 2 is located with its upper edge at 1990 MHz.

NOTE 6: If the aggressor band is NR band, the test SCS and UL RB can be adjusted according to supported BW and lowest SCS supported by the UE.

7.3B.2.0.3.2 Reference sensitivity exceptions due to receiver harmonic mixing for EN-DC in NR

Sensitivity degradation is allowed for a band if it is impacted by receiver harmonic mixing due to another band part of the same EN-DC configuration. Reference sensitivity exceptions for the victim band (low) are specified in Table 7.3B.2.0.3.2-1 with uplink configuration of the aggressor band (high) specified in Table 7.3B.2.0.3.2-2.

Table 7.3B.2.0.3.2-1: Reference sensitivity exceptions (MSD) due to receiver harmonic mixing for EN-DC in NR FR1

	E-UTRA or NR Band / Channel bandwidth of the affected DL band / MSD													
UL band	DL band	5 MHz (dB)	10 MHz (dB)	15 MHz (dB)	20 MHz (dB)	25 MHz (dB)	40 MHz (dB)	50 MHz (dB)	60 MHz (dB)	80 MHz (dB)	90 MHz (dB)	100 MHz (dB)		
2	n71 <sup>4</sup>	26.8	23.6	21.2	15.6									
n41	26 <sup>4</sup>	24.3	24.3	22.5	N/A									
n77	2	6.1	5.0	4.0	3.7									
n77	3	5.7	4.0	3.0	2.7									
n77	13 <sup>2</sup>	31	28											
n78	3	5.7	4.0	3.0	2.7									
n77	41 <sup>8</sup>	10.4	10.4	10.4	10.4									
n77	28 <sup>2</sup>	28	25	23.2	22									
n78	41 <sup>8</sup>	10.4	10.4	10.4	10.4									
n79	114	39.3	36.3	34.5										
n79	19 <sup>2</sup>	29.5	26.5	24.7										
n79	21 <sup>4</sup>	39.3	36.3	34.5										
n79	26 <sup>2</sup>	27	24	22.2										

- NOTE 1: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (higher) band for which the mixing product due to harmonic of victim (lower) band LO with leakage of aggressor (higher) band is within the downlink transmission bandwidth of a victim (lower) band.
- NOTE 2: The requirements should be verified for DL EARFCN of the victim (lower) band (superscript LB) such that  $f_{DL}^{LB} = \left \lfloor f_{UL}^{HB} / 0.5 \right \rfloor 0.1$  with  $f_{DL}^{LB}$  the DL carrier frequency in the lower band and  $f_{UL}^{HB}$  the UL carrier frequency in the higher band, both in MHz.
- NOTE 3: Void.
- NOTE 4: The requirements should be verified for DL EARFCN or NR-ARFCN of the victim (lower) band (superscript LB) such that  $f_{DL}^{IB} = \left \lfloor f_{UL}^{IB}/0.3 \right \rfloor 0.1$  with  $f_{DL}^{IB}$  the DL carrier frequency in the lower band and in MHz and  $f_{UL}^{HB}$  the UL carrier frequency in the higher band, both in MHz.
- NOTE 5: Void.
- NOTE 6: Void.
- NOTE 7: Void.
- NOTE 8: The requirements should be verified for DL EARFCN of the victim (lower) band (superscript LB) such that  $f_{DL}^{LB} = \left[f_{UL}^{HB}/0.15\right]0.1$  with  $f_{DL}^{LB}$  the DL carrier frequency in the lower band and  $f_{UL}^{HB}$  the UL carrier frequency in the higher band, both in MHz.
- NOTE 9: No requirements apply for the case that there is at least one individual RE within the uplink transmission bandwidth of the relative higher band and when the frequency range of relative higher band's uplink channel bandwidth or uplink 1st adjacent channel bandwidth is fully or partially overlapped with the 3 times of the frequency range of the relative lower band's downlink channel bandwidth. The reference sensitivity is only verified when this is not the case
- NOTE 10: MSD test point can be chosen according to supported BW and lowest SCS supported by the UE.
- NOTE 11: The MSD test points cannot be verified for the band combination in US due to the Band n77 frequency range restriction.

Table 7.3B.2.0.3.2-2: Uplink configuration for reference sensitivity exceptions due to receiver harmonic mixing for EN-DC in NR FR1

E-UTF	E-UTRA or NR Band / SCS / Channel bandwidth of the affected DL band / UL RB allocation of the aggressor band													
UL band	DL band	SCS of UL band (kHz)	5 MHz (L <sub>CRB</sub> )	10 MHz (L <sub>CRB</sub> )	15 MHz (L <sub>CRB</sub> )	20 MHz (L <sub>CRB</sub> )	25 MHz (L <sub>CRB</sub> )	40 MHz (L <sub>CRB</sub> )	50 MHz (L <sub>CRB</sub> )	60 MHz (L <sub>CRB</sub> )	80 MHz (L <sub>CRB</sub> )	90 MHz (L <sub>CRB</sub> )	100 MHz (L <sub>CRB</sub> )	
2	n71	15	25	50	50	50								
n41	26	15	25	50	75									
n77	2	15	25	50	75	100								
n77	3	15	25	50	75	100								
n77	13	15	25	50										
n78	3	15	25	50	75	100								
n77	28	15	25	50	75	100								
n77	41	15	12	25	36	50								
n78	41	15	12	25	36	50								
n79	11	15	25	50	75									
n79	19	15	25	50	75									
n79	21	15	25	50	75									
n79	26	15	25	50	75									

NOTE 1: Void. NOTE 2: Void.

NOTE 3: The UL configuration applies regardless of the channel bandwidth of the UL band. UL resource blocks allocation in the table shall be further limited to that specified in Table 7.3.1-2 in TS 36.101 [5] or Table 7.3.2-3 in TS 38.101-1[2].

NOTE 4: Unless otherwise stated, the UL resource blocks allocation is applied at the centre of the channel bandwidth. The note applies to the entire table.

NOTE 5: If the aggressor band is NR band, the test SCS and UL RB can be adjusted according to supported BW and lowest SCS supported by the UE.

7.3B.2.0.3.3 Void

7.3B.2.0.3.4 Reference sensitivity exceptions due to cross band isolation for EN-DC in NR FR1

Sensitivity degradation is allowed for a band if it is impacted by UL of another band part of the same EN-DC configuration due to cross band isolation issues. Reference sensitivity exceptions for the victim band are specified in Table 7.3B.2.0.3.4-1, Table 7.3B.2.0.3.4-1a with uplink configuration of the aggressor band specified in Table 7.3B.2.0.3.4-2.

Table 7.3B.2.0.3.4-1: Reference sensitivity exceptions (MSD) due to cross band isolation for PC3 ENDC in NR FR1

	E-UTRA or NR Band / Channel bandwidth of the affected DL band /MSD													
UL band	DL band	5 MHz (dBm)	10 MHz (dB)	15 MHz (dB)	20 MHz (dB)	25 MHz (dB)	30 MHz (dB)	40 MHz (dB)	50 MHz (dB)	60 MHz (dB)	80 MHz (dB)	90 MHz (dB)	100 MHz (dB)	
n1 <sup>5</sup>	3	3	2.3	2	1.8									
1 <sup>5</sup>	n3	3	2.2	1.9	1.7	1.6	1.5	[1.4]						
1	n40	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6			
3	n41		0.7	0.7	0.7		[0.7]	0.7	0.7	0.7	0.7	0.7	0.7	
n5	28	4.5	3	2.2	0.3									
n40	1	8.3	8.3	8.3	8.3									
n41	2	0.6	0.6	0.6	0.6									
n41	3	0.6	0.6	0.6	0.6									
n41	25	0.6	0.6	0.6	0.6									
n77	41 <sup>1</sup>	4.5	4.5	4.5	4.5									
n41	66¹	3.5	3.5	3.5	3.5									
41	n77		8.3	8.3	8.3			6.3	5.3	4.5	4.0	3.9	3.8	
3	n51	6.4												
30	n66	8.3	8.3	8.3	8.3			8.3						
n78	7 <sup>1</sup>	4.5	4.5	4.5	4.5									
n78	38	3.3	3.3	3.3	3.3									
n78	41 <sup>1</sup>	4.5	4.5	4.5	4.5									
n78	46				7									
41	n78		8.3	8.3	8.3			6.3	5.3	4.5	4.0	3.9	3.8	
n79	42 <sup>4</sup>	2.8	2.8	2.8	2.8									

- NOTE 1: Applicable only when harmonic mixing MSD for this combination is not applied.
- NOTE 2: The B41 requirements are modified by -0.5dB when carrier frequency of the assigned E-UTRA channel bandwidth is within 2515 2690 MHz.
- NOTE 3: These requirements apply when the uplink is active in Band n1, n84 and the separation between the lower edge of the uplink channel in Band n1, n84 and the upper edge of the downlink channel in Band 3 is < 60 MHz. For each channel bandwidth in Band 3, the requirement applies regardless of channel bandwidth in Band n1, n84.
- NOTE 4: The DL victim band should be configured using the lowest SCS that is compatible with the highest CBW for which an MSD is specified.
- NOTE 5: MSD test point can be chosen according to supported BW and lowest SCS supported by the UE.
- NOTE 6: The requirements only apply for UEs supporting inter-band DC\_42\_n79 ENDC with simultaneous Rx/Tx capability. Simultaneous Rx/Tx capability does not apply for UEs supporting band 42 with a n77 implementation only. These restrictions are applicable to related higher order configurations.

Table 7.3B.2.0.3.4-1a: Reference sensitivity exceptions (MSD) due to cross band isolation for PC2 ENDC in NR FR1

		E-UTRA or NR Band / Channel bandwidth of the affected DL band / MSD													
UL band	DL band	5 MHz (dB)	10 MHz (dB)	15 MHz (dB)	20 MHz (dB)	25 MHz (dB)	30 MHz (dB)	40 MHz (dB)	50 MHz (dB)	60 MHz (dB)	80 MHz (dB)	90 MHz (dB)	100 MHz (dB)		
3	n41		0.7	0.7	0.7			0.7	0.7	0.7	0.7	0.7	0.7		
n41	3	2.3	2.3	2.3	2.3										

Table 7.3B.2.0.3.4-2: Uplink configuration for reference sensitivity exceptions due to cross band isolation for PC3 EN-DC in NR FR1

E-UTRA or NR Band / SCS / Channel bandwidth of the affected DL band / UL RB allocation of the aggressor band														
UL ban d	DL ban d	SCS of UL ban d (kHz	5 MHz (Lcrb )	10 MHz (Lcrb )	15 MHz (Lcrb )	20 MHz (Lcrb )	25 MHz (Lcrb )	30 MHz (Lcrb )	40 MHz (Lcrb )	50 MHz (Lcrb )	60 MHz (Lcrb )	80 MHz (Lcrb )	90 MHz (Lcrb )	100 MHz (Lcrb )
n1	3	15	25	25	25	25								
1	n3	15	25	25	25	25	25	25	[25]					
1	n40	15	25	50	75	100	100	100	100	100	100	100		
3	n41	15		50	50	50		[50]	50	50	50	50	50	50
n5	28	15	25	25	20	20								
n40	1	15	25	50	75	100								
n41	2	30	160	160	160	160								
n41	3	30	160	160	160	160								
n41	25	30	160	160	160	160								
n77	41	30	270	270	270	270								
n41	66	30	128	128	128	128								
41	n77	15		100	100	100			100	100	100	100	100	100
3	n51	15	25											
30	n66	15	25	25	25	25			25					
n78	7	30	270	270	270	270								
n78	38	30	270	270	270	270								
n78	41	30	270	270	270	270								
n78	46	30				270								
41	n78	15		100	100	100			100	100	100	100	100	100
n79	42	30	270 <sup>4</sup>	270 <sup>4</sup>	270 <sup>4</sup>	270 <sup>4</sup>								

NOTE 1: The UL configuration applies regardless of the channel bandwidth of the UL band. UL resource blocks allocation in the table shall be further limited to that specified in Table 7.3.1-2 in TS 36.101 [5] or Table 7.3.2-3 in TS 38.101-1 [2].

- NOTE 2: The UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth.
- NOTE 3: When the maximum UL RB allocation "LCRB" value is less than the maximum transmission bandwidth configuration "NRB" defined in Table 5.3.2-1 in 38.101-1 [2] for the specified UL band SCS, the UL band should be configured using the lowest CBW that is compatible with the maximum specified LCRB value.
- NOTE 4: If the aggressor band is NR band, the test SCS and UL RB can be adjusted according to supported BW and lowest SCS supported by the UE.
- NOTE 5: The requirements only apply for UEs supporting inter-band ENDC with simultaneous Rx/Tx capability. Simultaneous Rx/Tx capability does not apply for UEs supporting band 42 with a n77 implementation only. These restrictions are applicable to related higher order configurations.

7.3B.2.0.3.5 MSD for intermodulation interference due to dual uplink operation for EN-DC in NR FR1

#### 7.3B.2.0.3.5.0 General

For EN-DC configurations in NR FR1 the UE may indicate capability of not supporting simultaneous dual uplink operation due to possible intermodulation interference overlapping in frequency to its own primary downlink channel bandwidth if

- the intermodulation order is 2;

- the intermodulation order is 3 when both operating bands are between 450 MHz – 960 MHz or between 1427 MHz – 2690 MHz

In the case for EN-DC configurations in NR FR1 for which the intermodulation products caused by dual uplink operation do not interfere with its own primary downlink channel bandwidth as defined in Annex M the UE is mandated to operate in dual and triple uplink mode.

For EN-DC configurations in NR FR1 with uplink and downlink assigned to E-UTRA and NR FR1 bands given in Table 7.3B.2.0.3.5.1-1, Table 7.3B.2.0.3.5.1-1a, Table 7.3B.2.0.3.5.2-0 and Table 7.3B.2.0.3.5.2-1 the reference sensitivity is defined only for the specific uplink and downlink test points specified in Table 7.3B.2.0.3.5.1-1, Table 7.3B.2.0.3.5.1-1a, Table 7.3B.2.0.3.5.2-0 and Table 7.3B.2.0.3.5.2-1. For these test points the reference sensitivity levels specified in clause 7.3.1 in TS 36.101 [5] and 7.3.2 of TS 38.101-1 [2] for the corresponding channel bandwidths or in clause 7.3.1 of TS 36.101 [5] are relaxed by the amount of the parameter MSD given in Table 7.3B.2.0.3.5.1-1, Table 7.3B.2.0.3.5.2-0 and Table 7.3B.2.0.3.5.2-1.

The throughput on each of the CGs shall be  $\geq$  95% of the maximum throughput of the respective reference measurement channels as specified in Annex A of TS 38.101-1 [2] and Annex A of TS 36.101 [5], with parameters specified in Table 7.3B.2.0.3.5.1-1, Table 7.3B.2.0.3.5.1-1a, Table 7.3B.2.0.3.5.2-0 and Table 7.3B.2.0.3.5.2-1 with dual UL transmissions overlapping in time unless otherwise stated.

7.3B.2.0.3.5.1 MSD test points for intermodulation interference due to dual uplink operation for PC3 EN-DC in NR FR1 involving two bands

Table 7.3B.2.0.3.5.1-1: MSD test points for PCell due to dual uplink operation for PC3 EN-DC in NR FR1 (two bands)

NR (	or E-UTRA B	and / Chai	nnel band	width / N	<sub>RB</sub> / MSD		
EN-DC	EUTRA	UL Fc	UL/DL	UL	DL Fc	MSD	IMD
Configuration	or NR band	(MHz)	BW (MHz)	L <sub>CRB</sub>	(MHz)	(dB)	order
DC_1_n3	1	1950	5	25	2140	23	IMD3
	n3	1760	5	25	1855	N/A	N/A
DC_1A_n8A	1	1965	5	25	2155	6.0	IMD4
	n8	887.5	5	25	932.5	N/A	N/A
DC_1A_n77A DC_1A_SUL_n77A-	1	1950	5	25	2140	29.8 32.5 <sup>4</sup>	IMD2 <sup>3</sup>
 n84A	n77, n78	4090	10	50	4090	N/A	N/A
DC_1A_n77A DC_1A-SUL_n77A- n84A	1	1950	5	25	2140	8.0 10.7 <sup>4</sup>	IMD4 <sup>3</sup>
DC_1A_n78A, DC_1A_SUL_n78A- n84A	n77, n78	3710	10	50	3710	N/A	N/A
DC_1A_n78A, DC_1A_SUL_n78A-	1	1950	5	25	2140	8.0 10.7 <sup>4</sup>	IMD4 <sup>3</sup>
n84A	n78	3710	10	25	3710	N/A	
DC_2A_n66A	2	1855	5	25	1935	20	IMD3
	n66	1775	5	25	2175	N/A	N/A
DC_2A_n66A	2	1883.3	5	25	1963.3	N/A	N/A
	n66	1750	5	25	2150	4	IMD5
DC_2A_n77A DC_2A-2A_n77A	2	1855	5	25	1935	26 28.7 <sup>4</sup>	IMD2
	n77	3790	10	50	3790	N/A	N/A
	2	1900	5	25	1980	8.0 10.7 <sup>4</sup>	IMD4
	n77	3720	10	50	3720	N/A	N/A
	2	1885	5	25	1965	5 7.7 <sup>4</sup>	IMD5
	n77	3810	10	50	3810	N/A	N/A
DC_2A_n78A	2	1855	5	25	1935	26 28.7 <sup>4</sup>	IMD2 <sup>3</sup>
	n78	3790	10	50	3790	N/A	N/A
	2	1885	5	25	1965	8.0 10.7 <sup>4</sup>	IMD4 <sup>3</sup>
	n78	3690	10	50	3690	N/A	N/A
DC_3_n1	3	1760	5	25	1855	N/A	N/A
	n1	1950	5	25	2140	23	IMD3
	3	1771	10	50	1866	4	IMD4
DC_3_n5	n5	838	5	25	883	N/A	N/A
	3	1721	10	50	1816	N/A	N/A
	n5	838	5	25	883	24	IMD2 <sup>3</sup>
DC_3A_n7A	3	1730	5	25	1825	N/A	N/A
DC_3C_n7A	n7	2535	10	50	2655	10.25	IMD4
DC_3A_n8A	n8	900	5	25	945	8	IMD4 <sup>3</sup>
	3	1755	10	50	1850	N/A	N/A
	n8	897.5	5	25	942.5	N/A	N/A
DC 3A n41A	3	1747.5	10 5	50	1842.5	6.4	IMD5 IMD4
DC_3A_n41A DC_3C_n41A	n41	1740 2657.5	10	25 50	1835 2657.5	8.2 N/A	IMD4
DC_3C_1141A DC_3A_SUL_n41A- n80A,	3	1740	5	25	1835	8.2	IMD4
DC_3C_SUL_n41A- n80A	n41	2657.5	10	52	2657.5	N/A	N/A
DC_3A_n77A DC_3A_SUL_n77A- n80A DC_3A_n78A	3	1740	5	25	1835	26 28.7 <sup>4</sup>	IMD2 <sup>3</sup>
DC_3A_1176A DC_3A-SUL_n78A- n80A, DC_3C_n78A	n77, n78	3575	10	50	3575	N/A	N/A
DC_3A_n77A	3	1765	5	25	1860	8.0	IMD4 <sup>3</sup>

	ı	ı I		1	Ī		Ī
DC_3A_SUL_n77A-						40 74	
n80A,						10.7 <sup>4</sup>	
DC_3A_n78A							
DC_3A-SUL_n78A-							
n80A,	n77, n78	3435	10	50	3435	N/A	N/A
DC_3C_n78A							
DC_5A_n66A	5	838	5	25	883	30	IMD2 <sup>3</sup>
	n66	1721	5	25	2121	N/A	N/A
DC_5A_n78A	5	844	5	25	889	8.3	IMD4
	n78	3421	10	50	3421	N/A	N/A
DC_5A_n77A8	5	844	5	25	889	8.3	IMD4
	n77	3421	10	50	3421	N/A	N/A
	5	826.5	5	25	871.5	5.5	IMD5
	n77	4177.5	10	50	4177.5	N/A	N/A
	7	2535	10	50	2655	13	IMD4
DC_7_n3	n3	1730	5	25	1825	N/A	N/A
DC_7_n5	7	2547	10	50	2667	N/A	N/A
DC_7_113							IMD3 <sup>3</sup>
DC_7A_n77A	n5	834	5	25	879	12	IMD4
DC_/A_n//A	7	2540	5	25	2660	7.1	
50 51 601	n77	3870	10	50	3870	N/A	N/A
DC_7A_n66A	7	2535	10	50	2655	15	4 <sup>th</sup> IMD
DC_7A-7A_n66A	n66	1730	5	25	2130	N/A	N/A
DC_7C_n66A	1100	1700					
DC_8A_n1A	8	887.5	5	25	932.5	N/A	N/A
	n1	1965	5	25	2155	6	IMD4
	8	900	5	25	945	8	IMD4 <sup>3</sup>
DC_8A_n3A	n3	1755	10	50	1850	N/A	N/A
	8	897.5	5	25	942.5	N/A	N/A
	n3	1747.5	10	50	1842.5	6.4	IMD5
DC_8A_n20A	n20	849.5	5	25	808.5	25	IMD3 <sup>3</sup>
DO_0/\_1120/\	8	890.5	5	25	935.5	N/A	N/A
	n20	847.5	5	25	806.5	N/A	N/A
	-		5				IMD3 <sup>3</sup>
	8	892.5		25	937.5	25	
DC_8A_n41A	8	882.5	5	25	927.5	12.1	IMD3 <sup>3</sup>
	n41	2685	10	50	2685	N/A	N/A
DC_8A_SUL_n41A-	8	882.5	5	25	927.5	12.1	IMD3 <sup>3</sup>
n81A	n41	2685	10	52	2685	N/A	N/A
DC_8A_n77A							
DC_8A_n78A	8	897.5	5	25	942.5	8.3	IMD4
DC_8A-n79C,							
DC_8A-SUL_n78A-	n77, n78	3635	10	50	3635	N/A	H4
n81A	1177,1176	3033	10	30	3033	IN/A	114
DC_12_n78	12	710	5	OF.	740	5.5	IMD5
DC_12_11/6				25	_		
50 101 771	n78	3580	10	50	3580	N/A	N/A
DC_13A_n77A	13	784.5	5	20	753.5	5.5	IMD5
	n77	3891.5	10	50	3891.5	N/A	N/A
	20	840	5	25	799	N/A	N/A
DC_20A_n3A	n3	1775	5	25	1870	4	IMD4
	20	847	5	25	806	9	IMD4
	n3	1735	5	25	1830	N/A	N/A
DC_8A_n79A	8	897.5	5	25	942.5	4.8	IMD5
DC_8A-SUL_n79A-	70		40	040			N/A
n81A	n79	4532.5	40	216	4532.5	N/A	
	18	N/A	N/A	N/A	N/A	N/A	IMD4
DC_18A_n77A	n77,						
DC_18A_n78A	n78	N/A	N/A	N/A	N/A	N/A	N/A
	12	702	5	20	732	5.5	IMD5
DC_12A_n77A		3540	10	50	3540	N/A	N/A
	n77						
DC_19A_n78A	19	N/A	N/A	N/A	N/A	N/A	IMD4
	n78	N/A	N/A	N/A	N/A	N/A	N/A
DC_20_n7	20	851	5	25	810	12	IMD3 <sup>3</sup>
	n7	2512	10	50	2632	N/A	N/A
	· 20	849.5	5	25	808.5	21	IMD3
DC_20A_n8A	20 n8	892.5	5	25	937.5	21	IMD3

DC_20A_n77A	20	850	5	25	809	11	IMD4
DC_20A_n78A,							
DC_20A-SUL_n78A- n82A	n77, n78	3359	10	50	3359	N/A	N/A
DC_20A_n77A	20	840	5	25	799	6.5	IMD5 <sup>4</sup>
	n77	4159	10	50	4159	N/A	N/A
DC_21A_n79A	21	1457.5	5	25	1505.5	18.4	IMD3
	n79	4420.5	40	216	4420.5	N/A	N/A
DC_26A_n41A	26	839	5	25	884	15.6	IMD3
	n41	2562	10	50	2562	N/A	N/A
DC_28A_n51A	28	742.3	5	25	797.3	5	IMD 4
	n51	1429.5	5	25	1429.5	N/A	N/A
	25	1855	5	25	1935	26	IMD2
	n77	3790	10	50	3790	N/A	N/A
DC_25A_n77A	25	1900	5	25	1980	8	IMD4
DC_25A-25A_n77A	n77	3720	10	50	3720	N/A	N/A
	25	1885	5	25	1965	5	IMD5
	n77	3810	10	50	3810	N/A	N/A
DC_26A_n77A,	26	836.5	5	25	881.5	11.1	IMD4
DC_26A_n78A	n77, n78	3391	10	50	3391	N/A	N/A
DC_28A_n77A,	28	705.5	5	25	760.5	5.5	IMD5
DC_28A_n78A, DC_28A-SUL_n78A-	n77, n78	3582.5	10	50	3582.5	N/A	N/A
n83A	40	0000		400	0000	N1/A	N1/A
DC_48A_n66A	48	3630	20	100	3630	N/A	N/A
	n66	1715	5	25	2115	4	IMD5
DO 004 04	66	1775	5	25	2175	N/A	N/A
DC_66A_n2A	n2	1855	5	25	1935	20	IMD3
	66	1750	5	25	2150	4	IMD5
DO 004 54	n2	1883.3	5	25	1963.3	N/A	N/A
DC_66A_n5A	n5	838	5	25	883	30	IMD2 <sup>3</sup>
	66	1721	5	25	2121	N/A	N/A
	66	1775	5	25	2175	N/A	N/A
DO 004 054	n25	1855	5	25	1935	20	IMD3
DC_66A_n25A	66	1712.5	5	25	2112.5	23	IMD3
	n25	1912.5	5	25	1992.5	N/A	N/A
	66	1750	5	25	2150	4	IMD5
	n25	1883.3	5	25	1963.3	N/A	N/A
DC_66A_n71A	66	1750	5	25	2150	5	IMD4
DO 004 774	n71	675	5	25	629	N/A	N/A
DC_66A_n77A DC_66-66_n77A DC_66-66-66_n77A	66	1775	5	25	2175	31.0	IMD2
	n77	3950	10	50	3950	N/A	N/A
	66	1760	5	25	2160	5.0	IMD5
	n77	3720	10	50	3720	N/A	N/A
DC_66A_n78A	66	1730	5	25	2130	5.0	IMD5
			5				

NOTE 1: E-UTRA carrier shall be set to min(+20 dBm, P<sub>CMAX\_L\_E-UTRA,c</sub>) and NR carrier shall be set to min(+20 dBm, P<sub>CMAX\_L,f,c,NR</sub>) as defined in clause 6.2B.4.1.3.

NOTE 2: RB<sub>START</sub> = 0

NOTE 3: This band is subject to IMD5 also which MSD is not specified.

NOTE 4: Applicable only if operation with 4 antenna ports is supported in the band with EN-DC configured.

NOTE 5: Void.

NOTE 6: For NR band, UL/DL BW and UL LCRB can be adjusted according to the supported BW and lowest SCS supported by the UE.

NOTE 7: The frequency range in band n28 is restricted for this band combination to 728 - 738 MHz for the UL and 783 - 793 MHz for the DL. This band is subject to IMD2, IMD4 and IMD5 fall in n28 also which MSD is not specified. In addition, this band is subject to IMD4 fall in B21 also which MSD is not specified.

NOTE 8: For a UE which supports this band combination only when the Band n77 frequency range restriction defined in NOTE 12 of Table 5.2-1 from TS 38.101-1 applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.

Table 7.3B.2.0.3.5.1-1a: MSD test points for PCell due to dual uplink operation for PC2 EN-DC in NR FR1 (two bands)

N	NR or E-UTRA Band / Channel bandwidth / N <sub>RB</sub> / MSD  EUTRA UI Fo UL/DL UI DI Fo MSD IMD													
EN-DC Configuration	EUTRA or NR band	UL F <sub>c</sub> (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL F <sub>c</sub> (MHz)	MSD (dB)	IMD order							
DC 44 =704	1	1950	5	25	2140	17.8	IMD4							
DC_1A_n78A	n78	3710	10	50	3710	N/A	N/A							
DC 24 n414	3	1740	5	25	1835	18.4	IMD4							
DC_3A_n41A	n41	2657.5	10	50	2657.5	N/A	N/A							
DC_3A_n78A	3	1740	5	25	1835	31.9	IMD2							
DC_3A_1176A	n78	3575	10	50	3575	N/A	N/A							
DC 24 n794	3	1765	5	25	1860	18.5	IMD4							
DC_3A_n78A	n78	3435	10	50	3435	N/A	N/A							
DC_2A_n77A	2	1855	5	25	1935	32.10 34.85 <sup>2</sup>	IMD2							
DC_2A-2A_n77A	n77	3790	10	50	3790	N/A	N/A							
DC_2A_n77C DC_2A-2A_n77C	2	1900	5	25	1980	19.10 21.85 <sup>2</sup>	IMD4 <sup>1</sup>							
	n77	3720	10	50	3720	N/A	N/A							
DC_5A_n77A <sup>3</sup>	5	844	5	25	889	18.60	IMD4 <sup>1</sup>							
DC_5A_n77C <sup>3</sup>	n77	3421	10	50	3421	N/A	N/A							
DC_13A_n77A	13	782	5	20	751	15.37	IMD5							
DC_13A_n77C	n77	3879	10	50	3879	N/A	N/A							
DC_66A_n77A	66	1775	5	25	2175	34.33	IMD2							
DC_66A-66A_n77A	n77	3950	10	50	3950	N/A	N/A							
DC_66A-66A-	66	1760	5	25	2160	11.27	IMD5							
66A_n77A DC_66A_n77C DC_66A-66A_n77C DC_66A-66A- 66A_n77C	n77	3720	10	50	3720	N/A	N/A							

NOTE 1: This band is subject to IMD5 also which MSD is not specified.

NOTE 2: Applicable only if operation with 4 antenna ports is supported in the band with EN-DC configured.

NOTE 3: For a UE which supports this band combination only when the Band n77 frequency range restriction defined in NOTE 12 of Table 5.2-1 from TS 38.101-1 applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.

NOTE 4: E-UTRA carrier shall be set to min(+23 dBm, P<sub>CMAX\_L,E-UTRA,c</sub>) and NR carrier shall be set to min(+23 dBm, P<sub>CMAX\_L,f,c,NR</sub>) as defined in clause 6.2B.4.1.3.

7.3B.2.0.3.5.2 MSD test points for intermodulation interference due to dual uplink operation for EN-DC in NR FR1 involving three bands

Table 7.3B.2.0.3.5.2-0: MSD test points for PCell due to dual uplink operation for EN-DC in NR FR1 (three bands)

	NR or E-UTRA Band / Channel bandwidth / NRB / MSD											
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL F <sub>c</sub> (MHz)	MSD (dB)		IMD order				
	66	1750	5	25	2150	5		IMD4				
DC_66A_(n)71AA	n71	678	10	10 (RB <sub>start</sub> =0)	632	N/A		N/A				

NOTE 1: For NR band, UL/DL BW and UL L<sub>CRB</sub> can be adjusted according to the supported BW and lowest SCS supported by the UE.

NOTE 2: E-UTRA carrier shall be set to min(+20 dBm, P<sub>CMAX\_L\_E-UTRA,c</sub>) and NR carrier shall be set to min(+20 dBm, P<sub>CMAX\_L,f,c,NR</sub>) as defined in clause 6.2B.4.1.3.

Table 7.3B.2.0.3.5.2-1: MSD test points for Scell due to dual uplink operation for EN-DC in NR FR1 (three bands)

	NR or E-U	TRA Band / Cha	annel band	dwidth /	NRB/MSD		
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order
	1	1975	5	25	2165	N/A	N/A
DC_1A-3A_n28A	n28	710.5	5	25	765.5	N/A	N/A
	3	1723.5	5	25	1818.5	4.0	IMD5
	3	1780	5	25	1875	N/A	N/A
DC_1A-3A_n28A	n28	710.5	5	25	765.5	N/A	N/A
	1 1	1949	5	25	2139	11.0	IMD4
	1	1935	5	25	2125	N/A	N/A
DC_1A-7A_n28A	n28	718	5	25	773	N/A	N/A
	7	2533	10	50	2653	30.0	IMD2
	1	1950	5	25	2140	N/A	N/A
	3	1712.5	5	25	1807.5	31.5	IMD2
	n77	3757.5	10	50	3757.5	N/A	N/A
DO 44 04 774	1	1950	5	25	2140	N/A	N/A
DC_1A-3A_n77A	3	1775	5	25	1870	8.5	IMD4
	n77	3980	10	50	3980	N/A	N/A
	1	1950	5	25	2140	31.0	IMD2
	3	1775	5	25	1870	N/A	N/A
	n77	3915	10	50	3915	N/A	N/A
	1	1950	5	25	2140	N/A	N/A
	3	1712.5	5	25	1807.5	31.2	IMD2
DC_1A-3A_n78A	n78	3757.5	10	50	3757.5	N/A	N/A
DC_1A-3C_n78A	1	1935	5	25	2125	2.8	IMD5
	3	1775	5	25	1870	N/A	N/A
	n78	3725	10	50	3725	N/A	N/A
	1	1932	5	25	2122	18.1	IMD3
	5	829	5	25	874	N/A	N/A
DC_1A-5A_n78A	n78	3780	10	50	3780	N/A	N/A
	1	1975	5	25	2165	N/A	N/A
	5	840	5	25	885	3.1	IMD5
	n78	3405	10	50	3405	N/A	N/A
	1	1977.5	5	25	2167.5	N/A	N/A
	7	2507.5	5	25	2627.5	9.1	IMD4
DC_1A-7A_n78A	n78	3305	10	50	3305	N/A	N/A
	1	1950	5	25	2140	8.7	IMD4
	7	2510	10	50	2630	N/A	N/A
	n78	3580	10	50	3580	N/A	N/A
	1	1977.5	5	25	2167.5	N/A	N/A
	n7	2507.5	5	25	2627.5	9.1	IMD4
DC_1A_n7A-n78A	n78	3305	10	50	3305	N/A	N/A
	1	1970	5	25	2160	N/A	N/A
	n7	2520	5	25	2640	N/A	N/A
	n78	3390	10	50	3390	10.1	IMD4
DC 44 04 704	1	1950	5	25	2140	3.6	IMD5
DC_1A-3A_n79A	3	1750	5	25	1845	N/A	N/A
	n79	4860	40	216	4860	N/A	N/A
DO 44 04 704	1	N/A	N/A	N/A	N/A	N/A	N/A
DC_1A-8A_n78A	8	N/A	N/A	N/A	N/A	N/A	IMD5
	n78	N/A	N/A	N/A	N/A	N/A	N/A
	1	1945	5	25	2135	N/A	N/A
	8	900	5	25	945	N/A	N/A
DC_1A-8A_n78A	n78	3745	10	52	3745	14.9	IMD3
	1	1940	5	25	2130	N/A	N/A
	8	895	5	25	940	3.3	IMD5
	n78	3380	10	52	3330	N/A	N/A
	1	N/A	N/A	N/A	N/A	N/A	N/A
	18	N/A	N/A	N/A	N/A	N/A	IMD5
DC_1A-18A_n77A	n77	N/A	N/A	N/A	N/A	N/A	N/A
· ·	1	1930	5	25	2120	16.4	IMD3
	18	825	5	25	870	N/A	N/A
DO 44 404 ==:	n77	3770	10	50	3770	N/A	N/A
DC_1A-18A_n78A	1	N/A	N/A	N/A	N/A	N/A	N/A

	NR or E-U	ITRA Band / Cha	annel band	dwidth /	NRB/MSD		
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order
	18	N/A	N/A	N/A	N/A	N/A	IMD5
	n78	N/A	N/A	N/A	N/A	N/A	N/A
	1	1930	5	25	2120	16.4	IMD3
	18	819	5	25	864	N/A	N/A
	n78	3758	10	50	3758	N/A	N/A
	1	1935	5	25	2125	N/A	N/A
	18	822.5	5	25	867.5	18.3	IMD3
	n79 1	4737.5 1930	40 5	216 25	4737.5 2120	N/A N/A	N/A N/A
DC_1A-18A_n79A	18	820	5	25	865	8.9	IMD4
DO_IA-IOA_III 3A	n79	4925	40	216	4925	N/A	N/A
	1	1935	5	25	2125	8.1	IMD4
	18	822.5	5	25	867.5	N/A	N/A
	n79	4592.5	40	216	4592.5	N/A	N/A
	1	1940	5	25	2130	17.8	IMD3
	19	832.5	5	25	877.5	N/A	N/A
DC_1A-19A_n77A	n77, n78	3795	10	50	3795	N/A	N/A
DC_1A-19A_n78A	1	N/A	N/A	N/A	N/A	N/A	N/A
_	19	N/A	N/A	N/A	N/A	N/A	IMD5
	n78	N/A	N/A	N/A	N/A	N/A	N/A
	1	1950	5	25	2140	N/A	N/A
	19	837.5	5	25	882.5	18.3	IMD3
DC_1A-19A_n79A	n79	4782.5	40	216	4782.5	N/A	N/A
DO_1A-13A_11/3A	1	1950	5	25	2140	8.1	IMD4
	19	837.5	5	25	882.5	N/A	N/A
	n79	4652.5	40	216	4652.5	N/A	N/A
	11	1925	5	25	2115	N/A	N/A
DC_1A-20A_n8A	n8	910	5	25	955	N/A	N/A
	20	846	5	25	805	11.5	IMD4
DC 14 204 ~704	20	1930	5 5	25 25	2120	20.3	IMD3
DC_1A-20A_n78A	n78	835 3790	10	50	794 3790	N/A N/A	N/A N/A
	1	1950	5	25	2140	N/A	N/A
DC_1A-20A_n78A	20	851	5	25	810	3.0	IMD5
DO_1A-20A_11/0A	n78	3330	10	50	3330	N/A	N/A
	1	1964.6	5	25	2154.6	30.6	IMD2
	21	1450.4	5	25	1498.4	N/A	N/A
	n77, n78	3605	10	50	3605	N/A	N/A
	1	N/A	N/A	N/A	N/A	N/A	N/A
DC_1A-21A_n77A	21	N/A	N/A	N/A	N/A	N/A	IMD2
DC_1A-21A_n78A	n78	N/A	N/A	N/A	N/A	N/A	N/A
	1	1950	5	25	2140	N/A	N/A
	21	1452	5	25	1500	2.9	IMD5
	n77, n78	3675	10	50	3675	N/A	N/A
	1	N/A	N/A	N/A	N/A	N/A	N/A
DC_1A-21A_n79A	21	N/A	N/A	N/A	N/A	N/A	IMD4
	n79	N/A	N/A	N/A	N/A	N/A	N/A
DO 41	28	710.5	5	25	765.5	N/A	N/A
DC_1A-28A_n3A	n3	1780	5	25	1875	N/A	N/A
	1	1949	5	25	2139	11.0	IMD4
DC 44 004 774	1	1960	5	25	2150	15.8	IMD3
DC_1A-28A_n77A	28	740	5	25	795	N/A	N/A
	n77	3630	10	50	3630	N/A	N/A
DC 14 204 5774	1	1960	5	25	2150	N/A	N/A
DC_1A-28A_n77A	28 p77	725	5	25	780	4.3	IMD5
	n77	3330	10	50	3330	N/A	N/A
DC 14 294 5794	28	1960	5 5	25 25	2150	15.7 N/A	IMD3 N/A
DC_1A-28A_n78A		740 3630		50	795 3630	N/A N/A	N/A N/A
	n78	3630	10 5	25	2160	N/A N/A	N/A N/A
DC_1A-28A_n78A	1 1	1970	h	75	7160	131773	

	NR or E-U	TRA Band / Ch	annel ban	dwidth /	NRB/MSD		
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order
	n78	3352	10	50	3352	N/A	N/A
	1	1950	5	25	2140	N/A	N/A
	n28	733	5	25	788	N/A	N/A
DC_1A_n28A-n78A	n78	3416	10	50	3416	15.7	IMD3
	1 n78	1950 3320	5 10	25 50	2140 3320	N/A N/A	N/A N/A
	n28	735	5	25	790	3.3	IMD5
	1	1930	5	25	2120	N/A	N/A
	28	733	5	25	788	15.2	IMD3
	n79	4648	40	216	4648	N/A	N/A
	1	1925	5	25	2115	N/A	N/A
	28	740	5	25	795	10.0	IMD4
DC_1A-28A_n79A	n79	4980	40	216	4980	N/A	N/A
	28	1977.5 745.5	5 5	25 25	2167.5 800.5	1.2 N/A	IMD4 N/A
	n79	4420	40	216	4420	N/A	N/A N/A
	1	1935	5	25	2125	4.5	IMD5
	28	718	5	25	773	N/A	N/A
	n79	4807	40	216	4807	N/A	N/A
	1	1935	5	25	2125	N/A	N/A
DC_1A-41A_n28A	n28	718	5	25	773	N/A	N/A
	41	2653	10	50	2653	30	IMD2
	1	1970	5	25	2160	N/A	N/A
	n77	3400	10	50	3400	N/A	
	41	2510 1950	5 5	25 25	2510 2140	11.0	IMD4 IMD4
DC_1A-41A_n77A	n77	3710	10	50	3710	9.3 N/A	N/A
DC_1A-41A_11/1A	41	2640	5	25	2640	N/A	N/A
	1	1930	5	25	2120	N/A	
	n77	4150	10	50	4150	N/A	N/A
	41	2510	5	25	2510	3.6	IMD5
	1	1950	5	25	2140	9.3	IMD4
	41	2640	5	25	2640	N/A	N/A
DC_1A-41A_n78A	n78	3710	10	50	3710	N/A	N/A
	41	1975	5 5	25 25	2165 2515	N/A 12	N/A IMD4
	n78	2515 3410	10	50	3410	N/A	N/A
	1	1955	5	25	2145	8.7	IMD4
DC_1A-41A_n78A	41	2507.5	10	50	2507.5	N/A	N/A
	n78	3580	10	50	3580	N/A	N/A
	1	1977.5	5	25	2167.5	N/A	N/A
	n79	4420	40	216	4420	N/A	N/A
	42	3490	5	25	3490	4.8	IMD5
DO 44 404 704	42	3402.5	5	25	3402.5	N/A	N/A
DC_1A-42A_n79A	n79	4640 1075	40	216 25	4640 2165	N/A 15.5	N/A IMD3
	42	1975 3450	5 5	25 25	3450	N/A	N/A
	n79	4520	40	216	4520	N/A	N/A
	1	1950	5	25	2140	9.3	IMD4
	1	1950	5	25	2140	N/A	N/A
	n78	3410	10	50	3410	N/A	N/A
DC 14 n784-n794	n79	4870	40	216	4870	15.9	IMD3
DC_1A_n78A-n79A	1	1950	5	25	2140	N/A	N/A
	n79	4670	40	216	4670	N/A	N/A
	n78	3490	10	50	3490	4.6	IMD5
DC 24 124 5664	2	N/A	N/A	N/A	N/A	N/A	IMD4
DC_2A-12A_n66A	12 n66	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A
	2	1874	5	25	1954	7.2	IMD4
DC_2A-14A_n66A	14	793	5	25	763	N/A	N/A
<u></u>	66	1770	5	25	2170	N/A	N/A

	NR or E-	UTRA Band / Cha	nnel ban	dwidth /	NRB / MSD		
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order
	2	1860	5	25	1940	22.6	IMD4
DC_2A-66A_n41A	66	1715	5	25	2115	N/A	N/A
	n41	2685	5	25	2685	N/A	N/A
	3	N/A	N/A	N/A	N/A	N/A	IMD3
DC_3A-5A_n78A	5	N/A	N/A	N/A	N/A	N/A	N/A
	n78	N/A	N/A	N/A	N/A	N/A	N/A
	3	1780	10	50	1875	N/A	N/A
DC_3A-7A_n5A	7	2505	10	50	2625	30.0	IMD2 <sup>X</sup>
	n5	845	5	25	890	N/A	N/A
	3	1712.5	5	25	1807.5	N/A	N/A
DO 04 74 004	n28	743	5	25	798	N/A	N/A
DC_3A-7A_n28A	7	2562	10	50	2682	16.9	IMD3
DC_3C-7A_n28A	7	2543	10	50	2663	N/A	N/A
	n28	710.5	5	25	765.5	N/A	N/A
	3	1737.5	5	25	1832.5	26.0	IMD2
	3	1725	5	25	1820	17.6	IMD3
DO 04 74 704	7	2565	5	25	2685	N/A	N/A
DC_3A-7A_n78A	n78	3310	10	50	3310	N/A	N/A
DC_3C-7A_n78A	3	1725	5	25	1820	8.6	IMD4
	7	2565	5	25	2685	N/A	N/A
	n78	3475	10	50	3475	N/A	N/A
	8	910	5	25	955	N/A	N/A
DC_3A-8A_n78A	n78	3640	10	50	3640	N/A	N/A
	3	1725	5	25	1820	16.5	IMD3
	8	910	5	25	955	N/A	N/A
DC_3A-8A_n78A	n78	3640	10	50	3640	N/A	N/A
	3	1725	5	25	1820	16.5	IMD3
DC_3A-18A_n77A	3	N/A	N/A	N/A	N/A	N/A	IMD3

	NR or E-U	JTRA Band / Ch	annel band	dwidth /	NRB/MSD		
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order
DC_3A-18A_n78A	18	N/A	N/A	N/A	N/A	N/A	N/A
	n77, n78	N/A	N/A	N/A	N/A	N/A	N/A
DO 04 404 704	3	N/A	N/A	N/A	N/A	N/A	IMD3
DC_3A-19A_n78A	19	N/A	N/A	N/A	N/A	N/A	N/A
	n78	N/A 1775	N/A 5	N/A 25	N/A 1870	N/A N/A	N/A N/A
	19	840	5	25	885	[18.5]	IMD3
	n79	4435	40	216	4435	N/A	N/A
DC_3A-19A_n79A	3	1782.5	5	25	1877.5	0.2	IMD4
	19	842.5	5	25	887.5	N/A	N/A
	n79	4420	40	216	4420	N/A	N/A
DC_3A-20A_n28A	20	852	5	25	811	N/A	N/A
DC_3A-20A_1126A DC_3C-20A_n28A	n28	728	5	25	783	N/A	N/A
	3	1733	5	25	1828	9.4	IMD4
DO 04 004 704	3	1730	5	25	1825	N/A	N/A
DC_3A_n20A-n78A	n20	845	5	25	804	N/A	N/A
	n78	3420 1725	10 5	50 25	3420 1820	16.1 17.3	IMD3 IMD3
DC 3A 20A p78A	20	845	5	25	804	17.3 N/A	N/A
DC_3A-20A_n78A	n78	3510	10	50	3510	N/A N/A	N/A N/A
	3	1767.5	5	25	1862.5	N/A	N/A
	21	1459.5	5	25	1507.5	8.8	IMD4
DC_3A-21A_n77A	n77, n78	3795	10	50	3795	N/A	N/A
DC_3A-21A_n78A	3	N/A	N/A	N/A	N/A	N/A	IMD2
	21	N/A	N/A	N/A	N/A	N/A	N/A
	n78	N/A	N/A	N/A	N/A	N/A	N/A
	3	1771.6	5	25	1866.6	3.4	IMD5
DC_3A-21A_n77A	21	1450.4	5	25	1498.4	N/A	N/A
	n77	3935	10	50	3935	N/A	N/A
	3	N/A	N/A	N/A	N/A	N/A	N/A
	21	N/A	N/A	N/A	N/A	N/A	IMD3
DC_3A-21A_n79A	n79 3	N/A 1774.2	N/A	N/A	N/A 1869.2	N/A	N/A IMD3
	21	1450.4	5	25 25	1498.4	17.8 N/A	N/A
	n79	4770	40	216	4770	N/A	N/A
	3	1712.5	5	25	1807.5	N/A	N/A
	28	715	5	25	770	15.3	IMD3
DO 04 004 774	n77	4195	10	50	4195	N/A	N/A
DC_3A-28A_n77A	3	1755	5	25	1850	17.0	IMD3
	28	735	5	25	790	N/A	N/A
	n77	3320	10	50	3320	N/A	N/A
	3	1775	5	25	1870	17.3	IMD3
DC_3A-28A_n78A	28	740	5	25	760	N/A	N/A
	n78	3350	10	25	3350	N/A	N/A
	3	1770	5	25	1865	N/A	N/A
	28 n70	725 4530	5 40	25 216	780 4530	10.3 N/A	IMD4 N/A
DC_3A-28A_n79A	n79 3	4530 1775	5	25	4530 1870	5.7	IMD5
	28	725	5	25	780	N/A	N/A
	n79	4770	40	216	4770	N/A	N/A
	3	1750	5	25	1845	N/A	N/A
DC_3A_n28A-n78A	n28	743	5	25	798	N/A	N/A
	n78	3764	10	50	3764	4.5	IMD5
DC_3A-40A_n1A	n1	1950	5	25	2140	N/A	N/A
	3	1735	5	25	1830	N/A	N/A
	40	2380	5	25	2380	8.0	IMD5
	41	2543	10	50	2543	N/A	N/A
DC_3A-41A_n28A	n28	710.5	5	25	765.5	N/A	N/A
DC_3A-41C_n28A	3	1737.5	5	25	1832.5	26	IMD2
	3	1780	5	25	1875	N/A	N/A
	n28	738	5	25	793	N/A	N/A

	NK OF E-U	TRA Band / Ch		uwidtn /	NKB/W5D	I	I
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order
	41	2518	5	25	2518	27.4	IMD2
	3	1715	5	25	1810	N/A	N/A
	n28	743	5	25	798	N/A	N/A
	41	2687	5	25	2687	15.9	IMD3
	3	1720	5	25	1815	N/A	N/A
DO 04 444 774	n77	3900	10	50	3900	N/A	N/A
DC_3A-41A_n77A	41	2640	5	25	2640	5.3	IMD5
DC_3A-41C_n77A DC_3A-41A_n77(2A)	41	2620	5	25	2620	N/A	N/A
DC_3A-41A_III I (2A)	n77	3400	10	50	3400	N/A	N/A
	3	1745	5	25	1840	16.4	IMD3
	41	2620	5	25	2620	N/A	N/A
DC_3A-41A_n78A	n78	3400	10	50	3400	N/A	N/A
	3	1745	5	25	1840	16.4	IMD3
	3	1770	5	25	1865	N/A	N/A
	n78	3340	10	50	3340	N/A	N/A
DO 04 704 70:	n79	4910	40	216	4910	16.3	IMD3
DC_3A_n78A-n79A	3	1770	5	25	1865	N/A	N/A
	n79	4510	40	216	4510	N/A	N/A
	n78	3710	10	50	3710	4.2	IMD5
DC_3A-SUL_n78A-	3	1775	5	25	1870	4	IMD4
n82A	n82	840	5	25		N/A	N/A
	3	1774.2	5	25	1869.2	17.8	IMD3
DC_3A-21A_n79A	21	1450.4	5	25	1498.4	N/A	N/A
DO_0/(2 // \_// \/ o/(	n79	4770	40	216	4770	N/A	N/A
	5	844	5	25	889	N/A	N/A
	7	2525	5	25	2645	30.1	IMD2
	n78	3489	10	50	3489	N/A	N/A
	5	834	5	25	879	30.2	IMD2
DC_5A-7A_n78A	7	2550	5	25	2670	N/A	N/A
DO_3A-1A_1110A	n78	3429	10	50	3429	N/A	N/A
	5	830	5	25	875	3.3	IMD5
	7	2525	5	25	2645	N/A	N/A
	n78	3350	10	50	3350	N/A	N/A
		835	-				IMD3
	5 41	2665	5 5	25 25	880 2665	23.9 N/A	N/A
			_				
DC_5A-41A_n79A	n79	4450	40	216	4450	N/A	N/A
	5	826.5	5	25	871.5	N/A	N/A
	41	2517.5	5	25	2517.5	1.8	IMD4
	n79	4980	40	216	4980	N/A	N/A
DO 74 04 04	n3	1735	5	25	1830	N/A	N/A
DC_7A-8A_n3A	7	2530	10	50	2650	N/A	N/A
	8	895	5	25	940	18.0	IMD3
DO 74 04 04	n3	1780	5	25	1875	N/A	N/A
DC_7A-8A_n3A	8	890	5	25	935	N/A	N/A
	7	2550	10	50	2670	29.0	IMD2+IMD3
DO 71 051 11	7	2510	10	50	2630	N/A	N/A
DC_7A-20A_n1A	20	841	10	50	800	4.5	IMD5
	n1	1940	5	25	2130	N/A	N/A
	7	2543	10	50	2663	N/A	N/A
	20	847	10	20	806	10.5	IMD2
DC_7A-20A_n3A	n3	1737	5	25	1832	N/A	N/A
DC_/A-20A_n3A	7	2510	10	50	2630	26.0	IMD2 <sup>1</sup>
	20	855	5	25	814	N/A	N/A
	n3	1775	10	50	1870	N/A	N/A
	7	2565	5	25	2685	N/A	N/A
DC_7A-20A_n8A	n8	885	5	25	930	N/A	N/A
	20	836	5	25	795	17.4	IMD3
	7	2520	5	25	2640	21.1	IMD3
DC_7A-20A_n8A	n8	900	5	25	945	N/A	N/A
_	20	840	5	25	799	N/A	N/A
DC_7A-20A_n8A	7	2504	5	25	2624	18.8	IMD3

	NR or E-	UTRA Band / Cha	nnel ban	dwidth /	NRB/MSD		
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order
	n8	910	5	25	955	N/A	N/A
	20	857	5	25	816	N/A	N/A
	20	842	5	25	801	N/A	N/A
DC_7A-20A_n28A	n28	728	5	25	783	N/A	N/A
	7	2520	10	50	2640	5.9	IMD5
	7	2560	5	25	2680	N/A	N/A
DC_7A-20A_n78A	20	851	5	25	810	30.5	IMD2
	n78	3370	10	50	3370	N/A	N/A
	7	2560	5	25	2680	N/A	N/A
DC_7A-20A_n78A	20	851	5	25	810	3.0	IMD5
	n78	3435	10	50	3435	N/A	N/A
	7	2555	5	25	2675	30.8	IMD2
DC_7A-20A_n78A	20	845	5	25	804	N/A	N/A
	n78	3520	10	50	3520	N/A	N/A
	7	2543	5	25	2663	N/A	N/A
	28	741	5	25	796.0	20.0	IMD2
DO 74 004 04	n3	1747	5	25	1842	N/A	N/A
DC_7A-28A_n3A	7	2540	5	25	2685	18	IMD3
	28	745	5	25	800	N/A	N/A
	n3	1715	5	25	1810	N/A	N/A
	7	2540	5	25	2660	N/A	N/A
	28	721	5	25	776	4.4	IMD5
	n5	829	5	25	874	N/A	N/A
DC_7A-28A_n5A	7	2510	5	25	2630	5.9	IMD5
	28	730	5	25	785	N/A	N/A
		840	5	25	874	N/A	N/A
	n5						
	7	<u>2540</u>	5 5	25	2725	N/A	N/A
DC 74 004 FA	28	721 829		25 25	776	4.4 N/A	IMD5 N/A
DC_7A-28A_n5A	n5 7		5		854		
DC_7C-28A_n5A		2510	5	25	2630	5.9	IMD5
	28	730	5	25	785	N/A	N/A
	n5	840	5	25	874	N/A	N/A
	7	2570	5	25	2670	N/A	N/A
	28	720	5	25	780	8.3	IMD2
	n78	3350	10	50	3421	N/A	N/A
	7	2570	5	25	2670	N/A	N/A
DC_7A-28A_n78A	28	720	5	25	790	3.0	IMD5
	n78	3460	10	50	3421	N/A	N/A
	7	2570	5	25	2650	30.5	IMD2
	28	740	5	25	768	N/A	N/A
	n78	3390	10	50	3421	N/A	N/A
	7	2565	5	25	2685	N/A	N/A
	n28	745	5	25	800	N/A	N/A
DC_7A_n28A-n78A	n78	3310	10	50	3310	29.7	IMD2
DC_7C_n28A-n78A	7	2565	5	25	2685	N/A	N/A
	n78	3365	10	50	3365	N/A	N/A
	n28	745	5	25	800	28.8	IMD2
	7	N/A	N/A	N/A	N/A	N/A	N/A
DC_7A-46A_n78A <sup>6</sup>	46	N/A	N/A	N/A	N/A	N/A	IMD2, IMD5
=	n78	N/A	N/A	N/A	N/A	N/A	N/A
DC_14A-66A_n2A	14	793	5	25	763	N/A	N/A
DC_14A-66A-	66	1762	5	25	2162	7.6	IMD4
66A_n2A	n2	1874	5	25	1954	N/A	N/A
	18	820	5	25	865	N/A	N/A
DC_18A-28A_n77A	28	723	5	25	778	4.4	IMD5
23_10/120/1_11/TA	n77	4058	10	50	4058	N/A	N/A
	18	820	5	25	865	3.9	IMD5
DC_18A-28A_n77A	28	723	5	25	778	3.9 N/A	N/A
DO_10A-20A_II//A		3757	1		3757	N/A N/A	N/A N/A
	n77		10	50			
DC_18A-28A_n78A	18	819	5	25	864	3.8	IMD5
	28	723	5	25	778	N/A	N/A

	NR or E-l	JTRA Band / Cha	nnel ban	dwidth /	NRB/MSD		
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order
	n78	3756	10	50	3756	N/A	N/A
	18	820	5	25	865	N/A	N/A
	n3	1725	5	25	1820	N/A	N/A
DC_18A-41A_n3A	41	2630	5	25	2630	16.0	IMD3
DC_18A-41C_n3A	18	820	5	25	865	28.9	IMD2
	n3	1765	5	25 25	1820 2630	N/A N/A	N/A N/A
	41 18	2630 820	5 5	25	865	3.4	IMD5
DC_18A-41A_n77A	n77	3527.5	10	50	3527.5	N/A	N/A
DC_18A-41C_n77A	41	2640	5	25	2640	N/A	N/A
	18	820	5	25	865	3.4	IMD5
DC_18A-41A_n78A	n78	3527.5	10	50	3527.5	N/A	N/A
DC_18A-41C_n78A	41	2640	5	25	2640	N/A	N/A
DO 404 044 774	19	837.5	5	25	882.5	18.7	IMD3
DC_19A-21A_n77A	21	1450.4	5	25	1498.4	N/A	N/A
DC_19A-21A_n78A	n77, n78	3783.3	10	50	3783.3	N/A	N/A
	19	837.5	5	25	882.5	N/A	N/A
DC_19A-21A_n77A	21	1454.5	5	25	1502.5	9.0	IMD4
	n77	4015	10	50	4015	N/A	N/A
	19	N/A	N/A	N/A	N/A	N/A	IMD5
	21	N/A	N/A	N/A	N/A	N/A	N/A
DC_19A-21A_n79A	n79	N/A	N/A	N/A	N/A	N/A	N/A
	19	837.5	5	25	882.2	N/A	N/A
	21	1452	5	25	1500	3.8	IMD5
	n79	4850	40	216	4850	N/A	N/A
	20	845	5 5	25 25	804 1825	N/A N/A	N/A N/A
	n3 n78	1730 3420	10	50	3420	16.1	IMD3
DC_20A_n3A-n78A	20	845	5	25	804	N/A	N/A
	n3	1765	5	25	1860	15.7	IMD3
	n78	3550	10	50	3550	N/A	N/A
	21	1452	5	25	1500	N/A	N/A
	28	730.5	5	25	785.5	16.9	IMD3
DC 044 004 ~774	n77	3689.5	10	50	3689.5	N/A	N/A
DC_21A-28A_n77A	21	1450.5	5	25	1498.5	9.9	IMD4
	28	730.5	5	25	785.5	N/A	N/A
	n77	3690	10	50	3690	N/A	N/A
	21	1450	5	25	1498	5.2	IMD5
DC_21A-28A_n79A	28	730.5	5	25	785.5	N/A	N/A
	n79	4420	40	216	4420	N/A	N/A
	28	745	5	25	800	N/A	N/A
	n7	2565 3310	5	25 50	2685 3310	N/A 29.7	N/A IMD2
DC_28A_n7A-n78A	n78 28	740	10 5	25	795	29.7 N/A	N/A
	n7	2530	5	25	2650	30.5	IMD2
	n78	3390	10	50	3390	N/A	N/A
	28	730	5	25	785	N/A	N/A
	42	3420	5	25	3420	15.3	IMD3
<b>DO</b> 004 151 -51	n79	4880	40	216	4880	N/A	N/A
DC_28A-42A_n79A	28	745	5	25	800	16.2	IMD2
	42	3597.5	5	25	3597.5	N/A	N/A
	n79	4420	40	216	4420	N/A	N/A
<del></del>	19	835	5	25	880	N/A	N/A
	n78	3680	10	50	3680	N/A	N/A
DC 104 5794 5704	n79	4515	40	216	4515	29.3	IMD2
DC_19A_n78A-n79A	19	835	5	25	880	N/A	N/A
	n79	4550	40	216	4550	N/A	N/A
	n78	3715	10	50	3715	28.8	IMD2
DC_20A_n28A-n78A	20	857	5	25	816	N/A	N/A
DC_20A_SUL_n78A-	n28, n83	743	5	25	798	N/A	N/A
n83A	n78	3314	10	50	3314	8.7	IMD4

	NR or E-UTRA Band / Channel bandwidth / NRB / MSD											
EN-DC Configuration	EUTRA/NR band	UL Fc (MHz)	UL/DL BW (MHz)	UL L <sub>CRB</sub>	DL Fc (MHz)	MSD (dB)	IMD order					
	20	837	5	25	796	N/A	N/A					
	n78	3310	10	50	3310	N/A	N/A					
	n28	744	5	25	799	9.4	IMD4					
	21	1453	5	25	1501	N/A	N/A					
	n78	3420	10	50	3420	N/A	N/A					
DC 214 p794 p704	n79	4873	40	216	4873	30.1	IMD2					
DC_21A_n78A-n79A	21	1453	5	25	1501	N/A	N/A					
	n79	4940	40	216	4940	N/A	N/A					
	n78	3487	10	50	3487	29.8	IMD2					

NOTE 1: For NR band, UL/DL BW and UL L<sub>CRB</sub> can be adjusted according to the supported BW and lowest SCS supported by the UE.

NOTE 2: E-UTRA carrier shall be set to min(+20 dBm, P<sub>CMAX\_L\_E-UTRA,c</sub>) and NR carrier shall be set to min(+20 dBm, P<sub>CMAX\_L,f,c,NR</sub>) as defined in clause 6.2B.4.1.3.

NOTE 3: This band is subject to IMD3 also which MSD is not specified.

NOTE 4: This MSD requirement apply with both IMD2 and IMD3 products should be generated.

7.3B.2.0.3.5.3 Void

### 7.3B.2.0.3a Inter-band NE-DC within FR1

Reference sensitivity exceptions are specified for the condition when there is uplink transmission only in the aggressor band. This subclause addresses directly only NE-DC configurations that don't have a corresponding specified EN-DC configuration or specific NE-DC exceptions.

# 7.3B.2.0.3a.1 Reference sensitivity exceptions due to UL harmonic interference for NE-DC in NR FR1

Sensitivity degradation is allowed for a band if it is impacted by UL harmonic interference from another band part of the same NE-DC configuration. For the NE-DC configurations that have an EN-DC defined configuration, the reference sensitivity exceptions for the victim band (high) are specified in Table 7.3B.2.3.1-1 with uplink configuration of the aggressor band (low) specified in Table 7.3B.2.3.1-2 are applicable.

### 7.3B.2.0.4 Inter-band EN-DC including FR2

7.3B.2.0.4.1 Void

### 7.3B.2.0.5 Inter-band EN-DC including both FR1 and FR2

# 7.3B.2.0.5.1 Reference sensitivity exceptions due to UL harmonic interference for EN-DC including both FR1 and FR2

For inter-band EN-DC of E-UTRA and NR in both FR1 and FR2, the UE is allowed to apply each sensitivity degradation for EN-DC in FR1 specified in clause 7.3B.2.3 TS 38.101-3 and for EN-DC including FR2 specified in clause 7.3B.2.3 of TS 38.101-3 independently.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.3B.2.

### 7.3B.2.1 Reference sensitivity for Intra-band Contiguous EN-DC (2 CCs)

Editor's note: MSD test point selection is based on core spec requirement and shall be added to TP analysis to TS 38.905 [7].

#### 7.3B.2.1.1 Test purpose

To verify the ability of UE that support intra-band contiguous EN-DC configurations to receive data with a given average throughput for a specified reference measurement channel, under conditions of low signal level, ideal

propagation and no added noise. A UE unable to meet the throughput requirement under these conditions will decrease the effective coverage area.

#### 7.3B.2.1.2 Test applicability

This test applies to all types of NR UE release 15 and forward supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

### 7.3B.2.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.3B.2.0.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

### 7.3B.2.1.4 Test description

#### 7.3B.2.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B, and the channel bandwidth combination for E-UTRA and NR component carriers shall follow the value specified in Table 5.3B.1.2-1. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2, and are shown in Table 7.3B.2.1.4.1-1 for DC\_(n)71AA and Table 7.3B.2.1.4.1-2 for intra-band contiguous EN-DC other than DC\_(n)71AA.

The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 for E-UTRA RMC, and in TS 38.521-1 [8] Annex A.2 and A.3 for NR RMC respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 7.3B.2.1.4.1-1: Test configurations table for EN-DC configurations affected by Reference sensitivity exceptions

Initial Co	onditions
Test Environment as specified in TS 38.508-1 [6] clause 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH
NR Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 E-UTRA Test Frequencies as specified in TS 36.508 [11] clause 4.3.1	Specified below
E-UTRA Test Channel Bandwidths as specified in TS 36.508 [11] clause 4.3.1	Specified below
NR Test Channel Bandwidths as specified in TS 38.508-1 [6] clause 4.3.1	Specified below
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]	Lowest
Network signalling value	NS_01 by default, exceptions listed in Table 7.3.3-3 in TS 36.521-1 [10], dependent on PCC Band
NR/E-UTRA 16  Downlink Configuration	est Parameters Uplink Configuration

	Downlink Co	nfiguration		Uplink Configuration					
NR Modulation	NR RB allocation	E-UTRA Modulation	E-UTRA RB allocation	NR Modulation	NR RB allocation	E-UTRA Modulation	E-UTRA RB allocation		
CP-OFDM QPSK	Full RB (NOTE 1)	QPSK	Full RB	DFT-s- OFDM QPSK		QPSK			

# **Test Point configurations**

# Test Settings for DC\_(n)71AA for dual UL UE

Test ID	E-UTRA/NR band	Fc (UL) (MHz) Nul	UL Channel BW (MHz)	UL allocation (L <sub>CRB</sub> )	Fc (DL) (MHz) N <sub>DL</sub>	Duplex mode
1	71	665.5MHz, EuL= 133147	5	5@19	619.5 MHz E <sub>DL</sub> = 68611	- FDD
	n71	675.5 N <sub>UL</sub> = 135100	15	15@0	629.5 N <sub>DL</sub> = 125900	
2	71	670.5 Eul= 133197	15	15@59	624.5 E <sub>DL</sub> = 68661	
	n71	680.5 NuL= 136100	5	5@0	634.5 N <sub>DL</sub> = 126900	
3	71	668 Eul= 133172	10	10@39	622 E <sub>DL</sub> = 68636	
	n71	678 NuL= 135600	10	10@0	632 N <sub>DL</sub> = 126400	
4	71	668 Eul= 133172	10	10@0	622 E <sub>DL</sub> = 68636	
	n71	678 N <sub>UL</sub> = 135600	10	10@41	632 N <sub>DL</sub> = 126400	
5	71	665.5 EuL= 133147	5	5@19	619.5 E <sub>DL</sub> = 68611	- FDD
	n71	675.5 N∪L= 135100	15 <sup>3</sup>	15@0	632 <sup>3</sup> N∪L= 126400	
6	71	670.5 E <sub>UL</sub> = 133197	15	15@59	624.5 E <sub>DL</sub> = 68661	
	n71	680.5 N <sub>UL</sub> = 136100	5 <sup>3</sup>	5@0	637 <sup>3</sup> N <sub>UL</sub> = 127400	
7	71	668 Eul= 133172	10	10@39	622 E <sub>DL</sub> = 68636	
	n71	678 N <sub>UL</sub> = 135600	10 <sup>3</sup>	10@0	634.5 <sup>3</sup> N <sub>UL</sub> = 126900	
8	71	668 E <sub>UL</sub> = 133172	10	10@0	622 E <sub>DL</sub> = 68636	
	n71	678 NuL= 135600	10 <sup>3</sup>	10@41	634.5 <sup>3</sup> N <sub>UL</sub> = 126900	

# Test Settings for DC\_(n)71AA for single UL UE

1	71	default	Highest	0	default	FDD
	n71	default	Highest	REFSENS_NR	default	FDD

- NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2 of TS 38.521-1 [8].
- NOTE 2: Test Channel Bandwidths are checked separately for each E-UTRA band, which applicable channel bandwidths are specified in Table 5.3B.1.2-1.
- NOTE 3: In accordance to BCS1, the NR uplink bandwidth is specified as in this table, but the corresponding NR downlink bandwidth is 5 MHz larger.
- NOTE 4: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected.
- NOTE 5: REFSENS\_NR refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.2.4.1-3 of TS 38.521-1 [8].

Table 7.3B.2.1.4.1-2: Test configurations table for EN-DC configurations not affected by Reference sensitivity exceptions, EN-DC configuration other than DC\_(n)71AA

Initial Conditions										
Test Envir	onment as	specified in	TS 38.508-1 [6	3] clause 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH					
clause4.3	.1, <sup>·</sup> est Freque	•	d in TS 38.508 ecified in TS 36		Low range, High range					
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1across bandwidth combination sets supported by					Pefer to "N	IP Nos"and "F-I	JTRA N <sub>RB</sub> " columr	ne		
the UE.					INGIGI IO IN	IN NRB and L-C	TIVA NRB COIGIIII	15		
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]					Lowest sup	oported SCS				
	ignalling va	llue				default, exception 10], dependent of	ons listed in Table on PCC Band	7.3.3-3 in TS		
	Test Parameters for DC Configurations									
		PCC	– E-UTRA				SCG -NR			
	Band	Range	N	RB	Band	Range	N	I <sub>RB</sub>		
ID	UL MOD	DL MOD	CH BW	DLalloc / UL alloc	UL MOD	DL MOD	UL/DL Ch BW	DLalloc / UL alloc		
Test Settings for a DC_(n)XAA Configuration (Intra-band contiguous EN-DC) – Note 2										
1 (Note 4)	Х	default			nX	default				
	QPSK	QPSK	Highest N <sub>RB_agg</sub> (Not e 6)	All RBs / REFSENS _LTE	DFT-s- OFDM QPSK	CP-OFDM QPSK	Highest N <sub>RB_agg</sub> (Note 6)	All RBs / REFSENS_NR		
2 (Note 5)	X	default			nX	default				
	N/A	QPSK	Highest N <sub>RB</sub>	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	Highest N <sub>RB</sub>	All RBs / REFSENS_NR		
Note 1:	according respective	to Table 7.3 ly.	.2.4.1-3 of TS	38.521-1 [8] ar	nd Table 7.3.	4.1-1 of TS 36.5	ion for reference s 521 [10] for NR and	d E-UTRA CC		
Note 2:						ment for intra-ba	and contiguous CA	in clause 7.4B,		
Note 3:			7.6B.4, 7.7B, 7. JF supports 4F			ned only with 4R	x antennas ports	connected		
Note 3:			orting dual UL.		an be penom	104 Offiny Wild 1 41V	ix antonnas ports	Join Joted.		
Note 5:	Test point	for UE supp	orting single U	L.						
Note 6:				nations in the	EN-DC confi	guration with the	e same N <sub>RB_agg</sub> , se	elect the		
		on to test as		Income the Control	4 4l					
			omponent with component with							
	- i ligitest i	LINDAN, INIC	omponent with	i ingriest NRB I	o icoicu.					

<sup>1.</sup> Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for TE diagram and clause A.3.2.1 for UE diagram.

- 2. The parameter settings for NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. The parameter settings for E-URA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 4. NR downlink signals are initially set up according to Annex C.0, C.1, C.2, C.3.1, and uplink signals according to Annex G.0, G.1, G.2, and G.3.1 of TS 38.521-1 [8].
- 5. E-UTRA downlink signals are initially set up according to Annex C0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0 of TS 36.521-1 [10].
- 6. The DL and UL Reference Measurement channels for NR are set according to Table 7.3B.2.1.4.1-1 and Table 7.3B.2.1.4.1-2.
- 7. The DL and UL Reference Measurement channels for E-UTRA are set according to Table 7.3B.2.1.4.1-1 and Table 7.3B.2.1.4.1-2.
- 8. NR propagation conditions are set according to Annex B.0 of TS 38.521-1 [8].
- 9. E-UTRA propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 10. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters *Connectivity* EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.3B.2.1.4.3.

#### 7.3B.2.1.4.2 Test procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.3B.2.1.4.1-1 and Table 7.3B.2.1.4.1-2 on the E-UTRA CC and NR CC. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.3B.2.3.4.1-1 on both EN-DC component carriers. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. For test points in Table 7.3B.2.1.4.1-1, set the Downlink signal level to the appropriate REFSENS value defined in Table 7.3B.2.1.5-1. For test points in Table 7.3B.2.1.4.1-2, set the Downlink signal level to the appropriate REFSENS value defined in TS 38.521-1 [8], Table 7.3.3-1 for NR band and TS 36.521-1 [10] Table 7.3.3-1 for E-UTRA band. Send continuously uplink power control "up" commands in the uplink scheduling information to both carriers to ensure the UE transmits PUMAX level for at least the duration of the Throughput measurement.
- 4. Measure the average throughput of both NR and E-UTRA for a duration sufficient to achieve statistical significance according to Annex H.2 of TS 38.521-1 [8] for NR band, and Annex G.2 of TS 36.521-1 [10] for EUTRA band.

### 7.3B.2.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

Message contents exceptions are according to TS 36.521-1 [10] clause 7.3.4.3 for each network signalling value.

### 7.3B.2.1.5 Test requirement

For intra-band contiguous EN-DC configurations DC\_(n)71AA with dual UL, the throughput of each CG shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 with reference receive power level specified in Table 7.3B.2.1.5-1.

Reference sensitivity test requirements for EN-DC configurations other than DC\_(n)71AA with dual UL UE, are specified in Table 7.3.5-1 in TS 36.521-1 [10] for the LTE CC, and Table 7.3.2.5-1 in TS 38.521-1 [8] for the NR CC.

Table 7.3B.2.1.5-1: Reference sensitivity for intra-band DC\_(n)71AA with dual UL

EN-DC	E-UTRA/ NR band	SCS (kHz)	Channel BW (MHz)	Ref sensitivity (dBm)	Note	Duplex mode
	71	N/A	5	-96.5	Note 1	
	n71	15	15	-89.8 +TT	Note 1	
	71	N/A	15	-91.3	Note 2	
	n71	15	5	-95.6 +TT	Note 2	
	71	N/A	10	-93.5	Note 3	
	n71	15	10	-92.3 +TT	Note 3	
	71	N/A	10	-76.3	Note 4	
DC (n)71 A A	n71	15	10	-64.6 +TT	Note 4	FDD
DC_(n)71AA	71	N/A	5	-96.5	Note 5	FDD
	n71	15	15 <sup>9</sup>	-89.1 +TT	Note 5	
	71	N/A	15	-91.3	Note 6	
	n71	15	5 <sup>9</sup>	-95.0 +TT	Note o	
	71	N/A	10	-93.5	Note 7	
	n71	15	10 <sup>9</sup>	-91.5 +TT	Note 7	
	71	N/A	10	-76.3	Note 8	
	n71	15	10 <sup>9</sup>	-64.9 +TT	Note 6	
				e 7.3B.2.1.4.1		
				e 7.3B.2.1.4.1		
				e 7.3B.2.1.4.1		
				e 7.3B.2.1.4.1		
				e 7.3B.2.1.4.1		
	•	•	•	e 7.3B.2.1.4.1 e 7.3B.2.1.4.1		
			,	e 7.3B.2.1.4.1 <sup>.</sup> e 7.3B.2.1.4.1 <sup>.</sup>		
				bandwidth is s		
				nk bandwidth i		

Table 7.3B.2.1.5-2: Test Tolerance (TT) for NR RX sensitivity level

f ≤ 3.0GHz	3.0GHz < f ≤ 6.0 GHz
0.7 dB	1.0 dB

# 7.3B.2.2 Reference sensitivity for Intra-band non-contiguous EN-DC (2 CCs)

Editor's note: No test case details specified due to no confirmed industry interest for intra-band non-contiguous ENDC combinations (removed at RAN5 #97).

## 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 (2 CCs)

### 7.3B.2.3.1 Test purpose

Same as in clause 7.3B.2.1.1.

### 7.3B.2.3.2 Test applicability

This test applies to all types of NR UE release 15 and forward supporting inter-band EN-DC within FR1 with 2 DL CCs.

#### 7.3B.2.3.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.3B.2.0.

LTE anchor agnostic approach is not applied.

7.3B.2.3.4 Test description

7.3B.2.3.4.1 Void

7.3B.2.3.4.2 Test description

7.3B.2.3.4.2.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths based on EN-DC operating bands specified in clause 5.5B, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration, and are shown in Table 7.3B.2.3.4.2.1-0 to Table 7.3B.2.3.4.2.1-6.

The details of the uplink and downlink reference measurement channels (RMCs) are specified in TS 36.521-1 [10] Annex A.2 and A.3 for E-UTRA RMC, and in TS 38.521-1 [8] Annex A.2 and A.3 for NR RMC respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG, respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG, respectively.

For configurations without any reference sensitivity exception, in a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected. For configurations with reference sensitivity exception, in an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected.

Table 7.3B.2.3.4.2.1-0: Test configurations table for all EN-DC configurations for FR1 non-exception requirements

				Initial Co	onditions			
		ment as spe	cified in TS	38.508-1 [6]	Normal, TL/VL, TL/VH, TH/VL, TH/VH			
clause 4.1  NR Test Frequencies as specified in TS 38.508-1 [6]								
clause4.3.1.								
	,	t Frequencie	es as specific	ed in TS 36.508 [11]	Mid range	for E-UTRA and	l Mid range for	NR
	se 4.3.1		ac op co					
Tes	t EN-DC	channel bar	ndwidth as sp	pecified in				
TS	36.508 [1	1] clause 4.	3.1 and TS 3	88.508-1 [6]	Refer to "N	R N <sub>RB</sub> "and "E-l	JTRA N <sub>RB</sub> " со	lumns
	se 4.3.1							
		as specifie	ed in Table 5	.3.5-1 in TS 38.521-	Lowest sup	ported SCS		
1 [8		- 11: 1			NO Od by	-1 - 414		
ivet	work sign	alling value			NS_01 by		2 2 in TC 26 5	21-1 [10] for the
					E-UTRA band and Table 7.3.2.3-4 in TS 38.521-1 [8] for the NR band.			
Test Parameters for DC Configurations								
			PCC - E-UT				CG -NR	
ID	Band	Range		N <sub>RB</sub>	Band	Range		N <sub>RB</sub>
שו	UL MOD	DL MOD	CH BW	DLalloc / UL alloc	UL MOD	DL MOD	UL/DL Ch BW	DLalloc / UL alloc
		Tes	t Settings fo	or a DC_XA_nYA Conf	iguration (Ir	ter-band EN-D	C) – Note 2	
1	Χ	default			nY	default		
					DFT-s-	CP-OFDM	Highest	All RBs /
	N/A	N/A	5 MHz	N/A	OFDM	QPSK	N <sub>RB</sub>	REFSENS NR
NO.	TE 1. DI	EESENS N	P refers to th	l ne single carrier Uplink l	QPSK PB allocation	for reference s	ensitivity accor	ding to table
INO			TS 38.521-1		ND allocation	i ioi reference s	erisitivity accor	uning to table
NO.			gnostic confi					
	NOTE 3: In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected.							
NO	ΓΕ 4: Th	ne test confi	guration tabl	e only applies to EN-DO	conly capable	le devices and c	levices not sup	porting NR/5GC
	mode in the tested band.							
NO.	ΓΕ 5: Οι	nly one EN-	DC combina	tion per FR1 band is tes	sted for each	EN-DC configu	ration as define	ed in clause 5.5B.

Table 7.3B.2.3.4.2.1-1: Initial test conditions for reference sensitivity exceptions due to UL harmonic interference for EN-DC in NR FR1

			Initial (	Conditions				
Test Environment as specified in TS 38.508-				Normal, TL/VL, TL/VH, TH/VL, TH/VH				
1 [6] clause 4.	•			,		,		
NR Test Frequ	uencies as	specified in T	S 38.508-			NR, unless ot		
1 [6] clause4.3				specified in Ta	able 7.3B.2.3	3.4.2.1-2_1 to T	able	
E-UTRA Test	Frequenci	es as specified	d in	7.3B.2.3.4.2.1	I-2_28			
TS 38.508-1 [6] clause4.3.1								
NR Test Channel Bandwidths as specified in				Highest N <sub>RB_a</sub>	<sub>igg</sub> , unless ot	herwise specifi	ed in Table	
	TS 38.508-1 [6] clause 4.3.1				I-2_1 to Tabl	e 7.3B.2.3.4.2.	1-2_28	
E-UTRA Test Channel Bandwidths as specified								
in TS 36.508 [11] clause 4.3.1								
NR Test SCS	NR Test SCS as specified in Table 5.3.5-1				Lowest otherwise specified			
			Test P	arameters				
Do	wnlink Co	onfiguration		Uplink Configuration				
E-UTRA	Cell	NR C	ell	E-UTRA	A Cell	NR C	ell	
Modulation	RB allocation	Modulation	RB allocation	Modulation	RB allocation	Modulation	RB allocation	
QPSK	Full RB	CP-OFDM QPSK	Full RB (NOTE 1)	QPSK	Full RB	DFT-s- OFDM QPSK	Full RB (NOTE 1)	
NOTE 1: Full	NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table							
7.3.2.4.1-2 of TS 38.521-1 [8] unless otherwise specified in Table 7.3B.2.3.4.2.1-2_1 to								
Tab	ole 7.3B.2.	3.4.2.1-2_28.						

Table 7.3B.2.3.4.2.1-2\_1: Void

Table 7.3B.2.3.4.2.1-2\_2: Void

Table 7.3B.2.3.4.2.1-2\_3: Void

Table 7.3B.2.3.4.2.1-2\_4: Void

Table 7.3B.2.3.4.2.1-2\_5: Void

Table 7.3B.2.3.4.2.1-2\_6: Void

Table 7.3B.2.3.4.2.1-2\_7: Void

Table 7.3B.2.3.4.2.1-2\_8: Void

Table 7.3B.2.3.4.2.1-2\_9: Void

Table 7.3B.2.3.4.2.1-2\_10: Test configurations table for exceptions due to UL harmonic interference for EN-DC 8\_n41 (Test frequencies are selected to fulfil Requirement of Note 8 and 9 in Table 7.3B.2.0.3.1-1)

	E-U	JTRA Band 8		NR Band n41			
Test ID	Channel BW (MHz)	Fc (UL) (MHz) N∪∟	UL allocation (L <sub>CRB</sub> )	NR F <sub>C</sub> (DL) (MHz) N <sub>DL</sub>	NR CBW (MHz)	UL allocation (L <sub>CRB</sub> )	
1		885 MHz/ 21500	16@17	2655 MHz/ 531000	Lowest	REFSENS (NOTE 2)	
2	10	885 MHz/ 21500	25@12	2655 MHz/ 531000	Mid	REFSENS (NOTE 2)	
3		890 MHz/ 21550	16@17	2670 MHz/ 534000	Lowest	REFSENS (NOTE 2)	

NOTE 1: Test frequencies are selected to fulfil Note 8 and 9 in Table 7.3B.2.0.3.1-1.

NOTE 2: REFSENS refers to Table 7.3.2.4.1-3 in TS 38.521-1 [8] which defines uplink RB configuration and start RB location for each SCS, channel BW and NR band.

Table 7.3B.2.3.4.2.1-2\_11: Void

Table 7.3B.2.3.4.2.1-2\_12: Void

Table 7.3B.2.3.4.2.1-2\_13: Void

Table 7.3B.2.3.4.2.1-2\_14: Test configurations table for exceptions due to UL harmonic interference for EN-DC 18\_n77 (Requirement of Note 4 and 5)

	E-U	TRA Band 18		NR Band n77			
Test ID	Channel BW (MHz)	Fc (UL) (MHz) N <sub>UL</sub>	UL allocation (L <sub>CRB</sub> )	NR F <sub>C</sub> (DL) (MHz) N <sub>DL</sub>	NR CBW (MHz)	UL allocation (L <sub>CRB</sub> )	
1		820 MHz/ 23900	16@17	4100.01 MHz/ 673334	Lowest	REFSENS (NOTE 2)	
2		820 MHz/ 23900	25@12	4100.01 MHz/ 673334	Mid Highest	REFSENS (NOTE 2)	
3	10	822.5 MHz/ 23925	16@17	4112.52 MHz/ 674168	Lowest	REFSENS (NOTE 2)	
4		822.5 MHz/ 23925	25@12	4112.52 MHz/ 674168	Mid Highest	REFSENS (NOTE 2)	
5		825 MHz/ 23950	16@17	4125 MHz/ 675000	Lowest	REFSENS (NOTE 2)	
6		825 MHz/ 23950	25@12	4125 MHz/ 675000	Mid Highest	REFSENS (NOTE 2)	

NOTE 1: Test frequencies are selected to fulfil Note 4 and 5 in Table 7.3B.2.0.3.1-1.

NOTE 2: REFSENS refers to Table 7.3.2.4.1-3 in TS 38.521-1 [8] which defines uplink RB configuration and start RB location for each SCS, channel BW and NR band.

Table 7.3B.2.3.4.2.1-2\_15: Test configurations table for exceptions due to UL harmonic interference for EN-DC 19\_n77 (Requirement of Note 4 and 5)

	E-U	TRA Band 19		NR Band n77			
Test ID	Channel BW (MHz)	Fc (UL) (MHz) Nul	UL allocation (Lcrb)	NR F <sub>C</sub> (DL) (MHz) N <sub>DL</sub>	NR CBW (MHz)	UL allocation (L <sub>CRB</sub> )	
1		835 MHz/ 24050	16@17	4175.01 MHz/ 678334	Lowest	REFSENS (NOTE 2)	
2	10	835 MHz/ 24050	25@12	4175.01 MHz/ 678334	40	REFSENS (NOTE 2)	
3		838.9 MHz/ 24089	16@17	4194.99 MHz/ 679666	Lowest	REFSENS (NOTE 2)	

NOTE 1: Test frequencies are selected to fulfil Note 4 and 5 in Table 7.3B.2.0.3.1-1.

NOTE 2: REFSENS refers to Table 7.3.2.4.1-3 in TS 38.521-1 [8] which defines uplink RB configuration and start RB location for each SCS, channel BW and NR band.

NOTE 3: For UEs with limited UE NR channel bandwidth capability, if the channel BW is not supported by the UE, skip the test point. This shall apply only for Rel 15 UEs.

Table 7.3B.2.3.4.2.1-2\_16: Void

Table 7.3B.2.3.4.2.1-2\_17: Void

Table 7.3B.2.3.4.2.1-2\_18: Void

Table 7.3B.2.3.4.2.1-2\_19: Void

Table 7.3B.2.3.4.2.1-2\_20: Void

Table 7.3B.2.3.4.2.1-2 21: Void

Table 7.3B.2.3.4.2.1-2\_22: Test configurations table for exceptions due to UL harmonic interference for EN-DC 1 n28

	NI	R Band n28		E-UTRA Band 1			
Test ID	Channel BW (MHz)	Fc (UL) (MHz) N <sub>UL</sub>	UL allocation (L <sub>CRB</sub> )	E-UTRA F <sub>C</sub> (DL) (MHz) N <sub>DL</sub>	E-UTRA CBW (MHz)	UL allocation (L <sub>CRB</sub> )	
1	10	715 MHz/ 143000	8@21	2145 MHz/ 350	5	REFSENS (NOTE 2)	
2	10	715 MHz/ 143000	16@17	2145 MHz/ 350	10	REFSENS (NOTE 2)	
3	10	715 MHz/ 143000	25@12	2145 MHz/ 350	15, 20	REFSENS (NOTE 2)	

NOTE 1: Test frequencies are selected to fulfil Note 8, 9 and 10 in Table 7.3B.2.0.3.1-1.

NOTE 2: REFSENS refers to Table 7.3.4.1-1 in TS 36.521-1 [10] which defines uplink RB configuration and start RB location for each channel BW.

Table 7.3B.2.3.4.2.1-2\_23: Test configurations table for exceptions due to UL harmonic interference for EN-DC 7\_n71 (Requirement of Note 6 and 7)

	NI	R Band n71		E-UTRA Band 7			
Test ID	Channel BW (MHz)	Fc (UL) (MHz) Nul	UL allocation (L <sub>CRB</sub> )	Fc (DL) (MHz) N <sub>DL</sub>	CBW (MHz)	UL allocation (L <sub>CRB</sub> )	
1		668 MHz/ 133600	16@17	2672 MHz/ 3270	10	REFSENS (NOTE 2)	
2	10		25@17		15	REFSENS (NOTE 2)	
3			25@17		20	REFSENS (NOTE 2)	

NOTE 1: Test frequencies are selected to fulfil Note 6 and 7 in Table 7.3B.2.0.3.1-1.

NOTE 2: REFSENS refers to Table 7.3.4.1-1 in TS 36.521-1 [10] which defines uplink RB configuration and start RB location for each channel BW and E-UTRA band.

#### Table 7.3B.2.3.4.2.1-2\_24: Void

Table 7.3B.2.3.4.2.1-2\_25: Test configurations table for exceptions due to UL harmonic interference for EN-DC 12\_n78 (Test frequencies are selected to fulfil Requirement of Note 4 and 5 in Table 7.3B.2.0.3.1-1)

		E-UTRA Band 12	2	NR Band 78			
Test ID	Channel BW (MHz)	Fc (UL) (MHz) / N <sub>UL</sub>	UL allocation (L <sub>CRB</sub> )	NR F <sub>C</sub> (DL) (MHz) / N <sub>DL</sub>	NR CBW (MHz)	UL allocation (L <sub>CRB</sub> )	
			10@10		10		
1	10	711 MHz / 23130	15@22	Mid	15	REFSENS (NOTE 2)	
			20@15		20	,	
			25@12		>=40		

NOTE 1: Test frequencies are selected to fulfil Note 4 and 5 in Table 7.3B.2.0.3.1-1.

NOTE 2: REFSENS refers to Table 7.3.2.4.1-3 in TS 38.521-1 [8] which defines uplink RB configuration and start RB location for each SCS, channel BW and NR band.

NOTE 3: Only Highest NR channel bandwidths supported by the UE are tested.

Table 7.3B.2.3.4.2.1-2\_26: Void

Table 7.3B.2.3.4.2.1-2\_27: Void

Table 7.3B.2.3.4.2.1-2\_28: Void

The initial test configurations for E-UTRA band and NR band consist of environmental conditions, test frequencies, and channel bandwidths and RB allocations for exceptional test scenarios due to receiver harmonic mixing for EN-DC in NR FR1 are specified in Table 7.3B.2.3.4.2.1-3, to Table 7.3B.2.3.4.2.1-3j.

Table 7.3B.2.3.4.2.1-3: Void

Table 7.3B.2.3.4.2.1-3a: Void

Table 7.3B.2.3.4.2.1-3aa: Void

Table 7.3B.2.3.4.2.1-3b: Void

Table 7.3B.2.3.4.2.1-3c: Void

Table 7.3B.2.3.4.2.1-3d: Void

Table 7.3B.2.3.4.2.1-3e: Void

Table 7.3B.2.3.4.2.1-3f: Void

Table 7.3B.2.3.4.2.1-3g: Void

Table 7.3B.2.3.4.2.1-3h: Void

Table 7.3B.2.3.4.2.1-3i: Void

Table 7.3B.2.3.4.2.1-3j: Void

Table 7.3B.2.3.4.2.1-3k: Void

The initial test configurations for E-UTRA band and NR band consist of environmental conditions, test frequencies, and channel bandwidths and RB allocations for exceptional test scenarios due to cross band isolation for EN-DC in NR FR1 are specified in Table 7.3B.2.3.4.2.1-4, to Table 7.3B.2.3.4.2.1-4n.

Table 7.3B.2.3.4.2.1-4: Test configurations table for exceptions due to cross band isolation for EN-DC FR1

Initial Conditions											
		ecified in TS 38	3.508-	Normal, TL/V	'L, TL/VH, TH/V	L, TH/VH					
1 [6] clause 4											
NR Test Fred	quencies as	specified in T	S 38.508-								
1 [6] clause4.					Гable 7.3В.2.3.4	.2.1-4a to Tabl	е				
E-UTRA Test	: Frequenci	es as specified	d in	7.3B.2.3.4.2.	1-4n.						
TS 36.508 [1	1] clause 4	.3.1									
NR Test Cha	nnel Bandv	vidths as speci	fied in	Specified in T	Table 7.3B.2.3.4	.2.1-4a to Tabl	е				
TS 38.508-1	[6] clause 4	1.3.1		7.3B.2.3.4.2.	1-4n.						
E-UTRA Test	Channel E	Bandwidths as	specified								
in TS 36.508											
NR Test SCS	as specifie	ed in Table 5.3		30 KHz							
			NR Test	t Parameters							
D	ownlink Co	onfiguration			Uplink Conf	iguration					
NR	NR RB	E-UTRA	E-UTRA	NR	NR RB	E-UTRA	E-UTRA				
Modulation	allocation	Modulation	RB	Modulation	allocation	Modulation	RB				
			allocation		anocation		allocation				
					Specified in		Table				
				DFT-s-	Table		7.3.4.1-1				
CP-OFDM	Full RB	OPSK	Full RB	OFDM	7.3B.2.3.4.2.1-	QPSK	in				
QPSK	(NOTE 1)	QI OIL	1 dii 10	QPSK	4a to Table	QI OIL	TS 36.521-				
	7.3B.2.3.4.2.1-										
					4n						
	NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table										
7.3	3.2.4.1-2 of	TS 38.521-1 [	8].								

Table 7.3B.2.3.4.2.1-4a: Void

Table 7.3B.2.3.4.2.1-4b: Test configurations for exceptions due to cross band isolation for EN-DC 25\_n41 (Victim band LTE)

	Aggressor UL		E-UTRA B25 Ch BW/Frequency range						
(	CBW/RB allocation	n	10MHz High range	15 MHz High range	20MHz High range				
NR	NR 100 MHz 160@0 n41 100 MHz 160@0		X <sup>1</sup> -	X <sup>1</sup> -	X <sup>1</sup>				
n41			-	-	X <sup>1</sup>				

NOTE 1: The UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth.

NOTE 2: NR UL RB configuration shall set per Table 7.3.2.4.1-3 in TS 38.521-1 [8].

Table 7.3B.2.3.4.2.1-4c: Void

Table 7.3B.2.3.4.2.1-4d: Test configurations for exceptions due to cross band isolation for EN-DC 38\_n78 (Victim band LTE)

	Aggressor UL			E-UTRA B38 DL CBM/RB allocation	
C	BW/RB allocation	n	10MHz Low, Mid High range	15 MHz Low, Mid High range	20MHz Low, Mid High range
NR Band	100 MHz 270@0	Low range	Х	Х	Х
n78	n78 100 MHz 270@0		-	-	Х

NOTE 1: The UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth.

NOTE 2: NR UL RB configuration shall be further limited to that specified per Table 7.3.2.4.1-3 in TS 38.521-1 [8].

Table 7.3B.2.3.4.2.1-4e: Void

Table 7.3B.2.3.4.2.1-4f: Void

Table 7.3B.2.3.4.2.1-4g: Void

Table 7.3B.2.3.4.2.1-4h: Void

Table 7.3B.2.3.4.2.1-4i: Test configurations table for exceptions due to cross band isolation for EN-DC 66\_n41(Victim band LTE)

	Aggressor UL		E-UTRA B66 Ch BW/Frequency range					
	CBW/RB allocation	n	10MHz High range	15 MHz High range	20MHz High range			
NR	NR 100 MHz 128@0 n41 100 MHz 128@0		X <sup>1</sup>	X <sup>1</sup>	X <sup>1</sup>			
n41			-	-	X <sup>1</sup>			

NOTE 1: The UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth.

NOTE 2: NR UL RB configuration shall be further limited to that specified per Table 7.3.2.4.1-3 in TS 38.521-1 [8].

NOTE 3: Applicable only when harmonic mixing MSD for this combination is not applied.

Table 7.3B.2.3.4.2.1-4j: Void

	Aggressor UL		NR n40 Ch BW/Frequency range						
C	BW/RB allocatio	n	10MHz	30 MHz	80 MHz				
			Low range	Low range	Low range				
E-UTRA	E-UTRA 20 MHz 100@0		X <sup>1</sup>	X <sup>1</sup>	X <sup>1</sup>				
B1	20 MHz 100@0	High range	-	-	X <sup>1</sup>				

NOTE 1: The UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth.

NOTE 2: NR UL RB configuration shall be further limited to that specified per Table 7.3.2.4.1-3 in TS 38.521-1 [8].

Table 7.3B.2.3.4.2.1-4k: Void

Table 7.3B.2.3.4.2.1-4I: Void

Table 7.3B.2.3.4.2.1-4m: Void

Table 7.3B.2.3.4.2.1-4n: Void

The initial test configurations for E-UTRA band and NR band consist of environmental conditions, test frequencies, and channel bandwidths and RB allocations for exceptional test scenarios due to dual uplink operation for EN-DC in NR FR1 (two bands) are specified in Table 7.3B.2.3.4.2.1-5.

Table 7.3B.2.3.4.2.1-5: Test Configuration Table Reference sensitivity exceptions due to dual uplink operation for EN-DC in NR FR1 (two bands)

						Initia	al Conditions	s				
	t Enviruse 4.1	onment as	specifie	d in TS 3	8.508-1 [	6]	Normal, TL	/VL, T	L/VH, T	TH/VL, TH/VI	4	
NR clau E-U	Test F Ise4.3. TRA T	requencies 1 est Freque [11] claus	encies as			-1 [6]	For test free	quenc	cies refe	r to "Range"	columns.	
NR TS : E-U	Test C 38.508 TRA T	hannel Ba -1 [6] claus est Chann [11] claus	ndwidths se 4.3.1 el Bandv	-		lin		R N <sub>re</sub>	and "E	-UTRA N <sub>RB</sub> "	columns	
Net	Network signalling value										36.521-1 [10] S 38.521-1 [8	
					Test Par	ameter	s for DC Co	nfigu	rations			
		DC C	onfigura	ation / NR	B_agg		DL Alle	ocatio	n	UL AI	location (No	te 2,3)
ID	DC Configuration  E- UTRA Ch  NR CC MOD RB CC MOD RB CC MOD Allocation E- UTRA & NR allocations											
	E-UTRA NR BW UTRA/NR OF UTRA/NR UTRA/NR (LCRB @ RBstart)											
	<u> </u>	rtunge		_	Test Set	tinas f	or a DC_XA_	nΥΔ	Config	uration		
1	Х	Mid	Y	Mid	5	Mid	QPSK /CP- OFDM QPSK		RBs	QPSK/ DFT-s- OFDM QPSK	REFSENS	REFSENS
			<u> </u>	Te	st Settine	as for E	DC_7A-n66A	Conf	igurati			
1	7	Note 5	66	Note 5	10	5	Note 7		RBs	Note 7	50@0	25@0
		•	•	Tes	st Setting	gs for D	C_7A_n77A	Con	figurati	on		
1	7	Low	77	High	5	10	Note 7	All	RBs	Note 7	25@0	50@0
				Tes	st Setting	gs for D	C_8A_n41A	Con	figurati	on		
1	8	Low	41	High	5	10	Note 7	All	RBs	Note 7	25@0	50@0
				Te	est Settin	gs for D	C_12A-n78A	Con	figuratio	n		
1	12	Note 5	78	Note 5	5	10	Note 7	All	RBs	All RBs	25@0	50@0
				Tes	t Setting	s for D	C_66A_n25/	A Cor	figurat	ion		
1	66	Note 5	5	Note 5	5	5	Note 7		RBs	Note 7	25@0	25@0
	Note 1: Both of the transmitters shall be set min(+20 dBm, PcMAX_L,c) as defined in clause 6.2.5A. In case Single UL is allowed and the UE only indicates support of "Single UL" the output power of the active UL shall be set at PcMAX_L,c or set to the maximum output power according to the UE power scaling capability.  Note 2: Use DC Configuration – specific test points if present in the table, otherwise use test points from matching Group Test Settings, if present in the table. Otherwise use the Default Test Settings test points.											
Not Not	e 4:	X,Y corres REFSENS reference respective	spond to 3 refers t sensitivi	the differ o the E_l ty accord	ent band: JTRA baring to tab	s in the nds and le 7.3.5	DC Configur NR band N <sub>R</sub> -2 of TS 36.5	ation. B 's si 321-1	E.g. for ngle ca [10] and	DC_1A-n3A rrier Uplink R d Table 7.3.2	x, X=1, Y=3. RB allocation f .4.1-3 of TS 3	88.521-1 [8],
Not Not	respectively  Note 5: Test frequency for each DC configuration shall follow Table 7.3B.2.0.3.5.1-1. If test configurations of each ID in a DC configuration are same, test frequency shall follow the order of Table 7.3B.2.0.3.5.1-1.  Note 6: Not applicable if the UE only supports Bandwidth Combination Set 1.  Note 7: Same as default.  Note 8: RBstart = 0											

Table 7.3B.2.3.4.2.1-6: Test Configuration Table for EN-DC configurations affected by Reference sensitivity exceptions (two bands)

				Initial Conditi	ions				
				08-1 [6] clause 4.1		Normal,	TL/VL, TL/V	H, TH/V	L, TH/VH
E-U7	RA Test F se 4.3.1	requencies as	specified in	8.508-1 [6] clause 4.3. TS 36.508 [11]	.1,	For test frequencies refer to "Range" columns.			
		annel bandwic d TS 38.508-1		ed in TS 36.508 [11]		Refer to	"NR N <sub>RB</sub> "an	d "E-UT	RA N <sub>RB</sub> " columns
NR T	est SCS a	s specified in	Table 5.3.5-	1 in TS 38.521-1 [8]		Lowest	supported S0	CS	
	ork signall					Unless ( [10] for t		band ar	-3 in TS 36.521-1 nd Table 7.3.2.3-4 in and.
				st Parameters for DC	Con	figuratio	ns		
		PC	C – E-UTRA				SC	G -NR	
	Band	Range		N <sub>RB</sub>	I	Band	Range		N <sub>RB</sub>
ID	UL MOD	DL MOD	CH BW	DLalloc / UL alloc		L MOD	DL MOD	UL/ DL Ch BW	DLalloc / UL alloc
			Test S	ettings for a DC_1A_	n3A		1		
<b>1</b> <sup>2,</sup> 11	1 QPSK	Mid QPSK	20 MHz	All RBs / REFSENS_ENDC		n3 N/A	Mid CP- OFDM QPSK	40 MHz	All RBs / 0
3 Q									
10	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4		OFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
	11	Low				n3	High		
3 <sup>6</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _3		N/A	CP- OFDM QPSK	40 MHz	All RBs / 0
-		T	Test S	ettings for a DC_1A_	n8A	Configu		ı	
1 <sup>4</sup>	1	UL 1965 / DL 2155				n8	UL 887.5 / DL 932.5		
	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	(	OFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
-		111 4050/	Test Se	ettings for a DC_1A_r	177A	Configu		I	
	1	UL 1950/ DL 2140				n77	UL/DL 3900		
1 <sup>3</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _1		N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
	1	UL 1950/ DL 2140				n77	UL/DL 3870		
2 <sup>3</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _1		N/A	CP- OFDM QPSK	20 MHz	All RBs / 0
3 <sup>4</sup>	1	UL 1950/ DL 2140				n77	UL/DL 4090.00 5		
J	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4		N/A	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
<b>4</b> <sup>4</sup>	1	UL 1950/ DL 2140		AU 5-2		n77	UL/DL 3709.00 5		40.55
-	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4		N/A	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
			Test Se	ettings for a DC_1A_n	178A	Configu	ıration		

						1 /5.		
44	1	UL 1950 / DL 2140			n78	UL/DL 3709.99 5		
14	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC 4	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC 4
'		<u> </u>	Test Se	ettings for a DC_2A_n				<u> </u>
	2	High			n41	Low		
1 <sup>6</sup>	N/A	QPSK	20 MHz	All RBs / REFSENS_LTE	DFT-s- OFDM QPSK	CP- OFDM QPSK	100 MHz	All RBs / REFSENS_ENDC _3
				ttings for a DC_2A_n	66A Configu	ration		
	2	UL 1855 / DI 1935	-		n66	DL 2175		
14	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
	2	UL 1883.3 /DL1963.3			n66	DL 2150		
24	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
			Test Se	ttings for a DC_2A_n	71A Configu			
1 <sup>3</sup>	2	DL 1980 MHZ			n71	UL 665.5 MHz		
1,	QPSK	QPSK	20 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _1
	2	DL1980 MHZ			n71	UL 673 MHz		
2 <sup>3</sup>	QPSK	QPSK	20 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _1
	2	UL 1881 MHZ			n71	Low		
3 <sup>5</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _2	DFT-s- OFDM QPSK	CP- OFDM QPSK	20 MHz	All RBs / 0
			Test Se	ttings for a DC_2A_n	77A Configu			
	2	UL 1860			n77	UL/DL 3720		
1 <sup>3</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _1	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
2 <sup>3</sup>	2	UL 1860			n77	UL/DL 3690.00 5		
2"	QPSK	QPSK	20 MHz	AII RBs / REFSENS_ENDC _1	N/A	CP- OFDM QPSK	20 MHz	All RBs / 0
38	2	UL 1860			n77	UL/DL 3850.00 5		
J-	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _1	N/A	CP- OFDM QPSK	10 MHz	All RBs / 0
	2	DL Mid			n77	UL/DL 3920.01		
45	N/A	QPSK	20 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP- OFDM QPSK	100 MHz	All RBs / REFSENS_ENDC _2
4a 9	2	DL Mid			n77	UL/DL 3999.99		

							ı	
	N/A	QPSK	20 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP- OFDM QPSK	100 MHz	All RBs / REFSENS_ENDC _2
5 <sup>4</sup>	2	UL 1855/DL 1935			n77	UL/DL 3790.00 5		
3	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
6 <sup>4</sup>	2	UL 1900/DL 1980			n77	UL/DL 3720		
0	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
<b>7</b> 4	2	UL 1885/DL 1965			n77	UL/DL 3810		
,	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
			Test Se	ttings for a DC_2A_r	78A Configu	ıration		
1 <sup>3</sup>	2	UL 1870		All RBs /	n78	UL/DL 3740.01 CP-		
1-	QPSK	QPSK	20 MHz	REFSENS_ENDC _1	N/A	OFDM QPSK	100 MHz	All RBs / 0
2 <sup>3</sup>	2	UL 1885			n78	UL/DL 3739.99 5		
	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _1	N/A	CP- OFDM QPSK	20 MHz	All RBs / 0
34	2	UL 1855/ DL 1935			n78	UL/DL 3790.00 5		
3	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
44	2	UL 1885/ DL 1965		All PRe /	n78 DFT-s-	UL/DL 3690 CP-		All RBs /
_	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	OFDM QPSK	OFDM QPSK	10 MHz	REFSENS_ENDC _4
1	3	Mid	lest Se	ettings for a DC_3A_	n1A Configu n1	Mid	1	
1,1 1	N/A	QPSK	20 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP- OFDM QPSK	50 MHz	All RBs / REFSENS_ENDC _3
	3	High			n1	Low		= -
2 <sup>6</sup>	N/A	QPSK	20 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP- OFDM QPSK	50 MHz	All RBs / REFSENS_ENDC _3
3 <sup>4</sup>	3	UL 1760 / DL 1855			n1	UL 1950 / DL 2140		
	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
			Test Se	ettings for a DC_3A_	n5A Configu			
	3	UL 1771 / DL 1866			n5	UL 838 / DL 883		
14	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
24	3	UL 1721 / DL 1816			n5	UL 838 / DL 883		

			T	All DDo /	DET	CP-		All DDo /
	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC 4	DFT-s- OFDM QPSK	OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC 4
			Test S	Settings for a DC_3A_i			l	
		LII 4700 /			•	UL 2535		
14	3	UL 1730 / DL 1825			n7	/ DL 2655		
				All RBs /	DFT-s-	CP-	10	All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC _4	OFDM QPSK	OFDM QPSK	MHz	REFSENS_ENDC _4
			Test S	Settings for a DC_3A_i	n8A Configura	ation		
	3	UL 1755 / DL 1850			n8	UL 900 / DL 945		
14	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
24	3	UL 1747.5 / DL 1842.5			n8	UL 897.5 / DL 942.5		
	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC 4	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC 4
			Test Se	ettings for a DC_3A_n	41A Configu	ration	1	<u>-</u> :
	3	High		<u> </u>	n41	Low		
1 <sup>6</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC 3	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
	3	High		_	n41	Low		
2 <sup>6</sup>	N/A	QPSK	20 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP- OFDM QPSK	50 MHz	All RBs / REFSENS_ENDC _3
34,	3	UL 1740 / DL 1835			n41	UL/DL 2657.5		
10	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
		Test	Settings fo	r DC_3A_n77A and D	C_3A_n78A	Configurati	ons	
	3	Mid			n78	UL/DL 3495		
1 <sup>3</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _1	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
	3	Mid			n78	UL/DL 3525		
2 <sup>3</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC _1	N/A	CP- OFDM QPSK	20 MHz	All RBs / 0
<b>3</b> <sup>5</sup>	3	Mid			n78	UL/DL 3685.00 5		
J	N/A	QPSK	20 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP- OFDM QPSK	20 MHz	All RBs / REFSENS_ENDC _2
	3	Low			n78	High		
3 <sup>9</sup>	QPSK	QPSK	20 MHz	All RBs/0	DFT-s- OFDM QPSK	CP- OFDM QPSK	20 MHz	All RBs / REFSENS_ENDC _2
44	3	UL 1740 / DL 1835			n78	UL/DL 3574.99 5		
4	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
5 <sup>4</sup>	3	UL 1765 / DL 1860			n78	UL/DL 3435		

		1					T	
	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC 4	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC 4
			Test Se	ettings for a DC_5A_r				<u>-</u> '
	_	UL 838/				UL		
	5	DL 883			n66	1721/ DL 2121		
14				All RBs /		CP-		All RBs /
	QPSK	N/A	5 MHz	REFSENS_ENDC	N/A	OFDM	5 MHz	REFSENS_ENDC
				_4		QPSK	IVII IZ	_4
		1	Test Se	ettings for a DC_5A_r	177A Configu	UL/DL	1	
	5	UL 837.5			n77	3350.01		
1 <sup>3</sup>				All RBs /		CP-	100	
	QPSK	QPSK	10 MHz	REFSENS_ENDC	N/A	OFDM	MHz	All RBs / 0
				_1		QPSK UL/DL		
	5	UL 829			n77	4145.01		
<b>2</b> <sup>3</sup>				All RBs /		CP-	100	
	QPSK	QPSK	10 MHz	REFSENS_ENDC	N/A	OFDM	MHz	All RBs / 0
		UL Mid		_1		QPSK		
	5	(836.5			n77	UL/DL		
38		MHz) 840				Mid		
3	0.0014	0.0014	40.141	All RBs /	<b>N</b> 1/A	CP-	100	A II DD / 0
	QPSK	QPSK	10 MHz	REFSENS_ENDC 1	N/A	OFDM QPSK	MHz	All RBs / 0
				_'		UL/DL		
	5	UL 844/DL 889			n77	3421.00		
44,		009				5		
13	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC	DFT-s- OFDM	CP- OFDM	10	All RBs / REFSENS_ENDC
	QPSK	QPSK	3 IVITZ	REFSENS_ENDC	QPSK	QPSK	MHz	REFSENS_ENDC
		UL		_ :		UL/DL		<u> </u>
	5	826.5/DL			n77	4177.5		
5 <sup>4,</sup>		871.5		All RBs /	DFT-s-	CP-		All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC	OFDM	OFDM	10	REFSENS_ENDC
		·		_4	QPSK	QPSK	MHz	_4
		1	Test S	ettings for DC_5A_n	78A Configu		1	Г
	5	UL 840			n78	UL/DL 3360		
1 <sup>3</sup>				All RBs /		CP-	400	
	QPSK	QPSK	10 MHz	REFSENS_ENDC	N/A	OFDM	100 MHz	All RBs / 0
				_1		QPSK	1011 12	
	5	UL 840			n78	UL/DL 3560.01		
2 <sup>8</sup>				All RBs /		CP-	400	
	QPSK	QPSK	10 MHz	REFSENS_ENDC	N/A	OFDM	100 MHz	All RBs / 0
				_1		QPSK	.711 12	
	5	UL 844/DL			n78	UL/DL 3421.00		
24	J	889			1170	5		
34				All RBs /	DFT-s-	CP-	10	All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC	OFDM	OFDM	MHz	REFSENS_ENDC
			Test S	4 ettings for a DC_7A_	QPSK n3A Configu	QPSK ration	<u> </u>	_4
	7	DL 2655	10310	go ioi a bo_i A_	n3	DL 1825		
14						CP-	5	All RBs /
	QPSK	N/A	10 MHz	N/A	N/A	OFDM	MHz	REFSENS_ENDC
			Test S	 ettings for a DC_7A_	n5A Configu	QPSK ration	j	_4
	7	DL 2667	. 550	go .o. u bo_1A_	n5	DL 879		
14	_					CP-	5	All RBs /
'	QPSK	N/A	10 MHz	N/A	N/A	OFDM	MHz	REFSENS_ENDC
			Test Se	 ettings for a DC_7A_r	78A Configu	QPSK ration	<u> </u>	_4

	7	High			n78	Low		
1 <sup>6</sup>	QPSK	QPSK	20 MHz	All RBs / REFSENS_ENDC	N/A	CP- OFDM	100 MHz	All RBs / 0
			Tost S	3 ettings for a DC_8A_	n1A Configu	QPSK		
	8	DL 932.5	1621 3			DL 2155		
14	QPSK	N/A	5 MHz	N/A	n1 N/A	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
			Test S	ettings for a DC_8A_i	n3A Configui	ration		
	8	DL 945			n3	DL 1850		
14	QPSK	N/A	5 MHz	N/A	N/A	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
	8	DL 942.5			n3	DL 1842.5		
24	QPSK	N/A	5 MHz	N/A	N/A	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
			Test Se	ttings for a DC_8A_r	20A Configu			
14	8	UL 890.5 / DL 935.5			n20	UL 849.5 / DL 808.5		
	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
2 <sup>4</sup>	8	UL 892.5 / DL 937.5			n20	UL 847.5 / DL 806.5		
	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC _4	DFT-s- OFDM QPSK	CP- OFDM QPSK	5 MHz	All RBs / REFSENS_ENDC _4
		Test	Settings fo	r DC_8A_n77A and D	C_8A_n78A		ons	
	8	Mid			n77	UL/DL 3590.01		
1 <sup>3</sup>	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC _1	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
2 <sup>,8</sup>	8	Mid			n77	UL/DL 3520.00 5		
_	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC _1	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
3 <sup>4</sup>	8	UL 897.5			n77	UL/DL 3634.99 5		
	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC4 ettings for DC_8A_n	DFT-s- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_ENDC _4
$\vdash$			rest S	Ettings for DC_8A_n		UL/DL		
12	8	UL 900		A!! DD '	n79	4500		
1 <sup>3</sup>	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC _1	N/A	QPSK	100 MHz	All RBs / 0
	8	UL 900			n79	UL/DL 4299.99		
2,8	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC _1	N/A	QPSK	100 MHz	All RBs / 0
3 <sup>4</sup>	8	UL 897.5			n79	UL/DL 4532.50 5		

QPSK	All RBs / REFSENS_ENDC _4  All RBs / REFSENS_ENDC _2  All RBs / REFSENS_ENDC _2
	All RBs / REFSENS_ENDC _2  All RBs / REFSENS_ENDC
11	All RBs / REFSENS_ENDC
11	All RBs / REFSENS_ENDC
15	All RBs / REFSENS_ENDC
N/A	All RBs / REFSENS_ENDC
N/A	_2 All RBs / REFSENS_ENDC
11   Mid     n79   UL/DL   4512.69	All RBs / REFSENS_ENDC
2-9	REFSENS_ENDC
2-9	REFSENS_ENDC
N/A	REFSENS_ENDC
12	
12 UL 710	
12 UL 710	
13 QPSK QPSK 10 MHz REFSENS_ENDC N/A OFDM QPSK MHz 12 UL 710 n66 /DL 2130 CP- 40 OFDM QPSK UL 1770 n66 /DL 2170	
All RBs /   CP-   40   MHz   REFSENS_ENDC   N/A   QPSK   MHz	
QPSK         QPSK         10 MHz         REFSENS_ENDC         N/A         OFDM QPSK         40 MHz           1         UL 1770         UL 1770         n66         /DL           3170         3170         3170         3170	
12 UL 710 PSK WHZ UL 1770 n66 /DL 2170	All RBs / 0
12 UL 710 n66 /DL	7.11.11.207.0
2170	
-	
	All DD- /O
QPSK QPSK 10 MHz REFSENS_ENDC N/A OFDM MHz QPSK	All RBs / 0
Test Settings for a DC_13A_n77A Configuration	
13 Mid n77 3909.99	
13 All RBs / CP- 100	
QPSK   QPSK   10 MHz   REFSENS_ENDC   N/A   OFDM   MHz	All RBs / 0
_1 QP5K	
28 13 Mid n77 UL/DL Mid	
All RRs / CP-	
OPSK OPSK 10 MHz   PEESENS ENDC   N/A   OEDM   100	All RBs / 0
QI SK QI SK   TO WITZ   KET SENS_ENDE   N/A   OT DW   MHz	
13 Mid n77 UL/DL	
3909.99	
35 DFT-s- CP- 100	All RBs /
N/A QPSK 10 MHz All RBs / 0 OFDM OFDM MHz QPSK QPSK	REFSENS_ENDC 2
LII/DI	
13 Mid n77 3834	
A9 DET.c. CP.	All RBs /
N/A QPSK 10 MHz All RBs / 0 OFDM OFDM MHz	REFSENS_ENDC
QPSK QPSK	_2
UL UL/DL UL/DL UL/DL	
13 784.5/DL n77 3891.49 5	
5" All RRs / DET-s- CP-	All RBs /
OPSK OPSK 5 MHz REESENS ENDO OFDM OFDM 100	REFSENS_ENDC
	_4
Test Settings for a DC_19A_n79A Configuration	<del></del>
19 DL 884 n79 Low	
15 DFT-s- CP- 40	All RBs /
N/A   QPSK   10 MHz   All RBs / 0   OFDM   OFDM   MLL_	REFSENS_ENDC
QPSK QPSK VIII LZ UL/DL UL/DL	_2
19 DL 884 n79 4445.02	
	All RBs /
	REFSENS_ENDC
N/A OPSK 10 MHz All RRs / O OFDM OFDM 40	
	_2

		UL 840 /				UL 1775		
	20	DL 799			n3	/ DL		
14						1870		
	0.0017	0.001		All RBs /	DFT-s-	CP-	5	All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC	OFDM	OFDM	MHz	REFSENS_ENDC
				_4	QPSK	QPSK		4
	00	UL 847 /				UL 1735		
	20	DL 806			n3	/ DL		
$2^{4}$				All DD /	DET	1830		All DD /
	ODOK	ODOK		All RBs /	DFT-s-	CP-	5	All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC	OFDM	OFDM	MHz	REFSENS_ENDC
			Took 6	4 Settings for a DC_20A_	QPSK	QPSK		_4
-		I	rest	Bettings for a DC_20A_	n/A Coning			
	20	UL 851 /			n7	UL 2512 / DL		
	20	DL 810			117	2632		
14				All RBs /	DFT-s-	CP-		All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC	OFDM	OFDM	10	REFSENS_ENDC
	QI OIX	QI OIX	0 WII 12	_4	QPSK	QPSK	MHz	_4
		<u> </u>	Test 9	Settings for a DC_20A_				
			1001	Johnnyo Tor a Do_207	nort coning	UL		
		UL 849.5 /			_	892.5 /		
	20	DL 808.5			n8	DL		
14						937.5		
				All RBs /	DFT-s-	CP-	_	All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC	OFDM	OFDM	5	REFSENS_ENDC
				_4	QPSK	QPSK	MHz	_4
			Test S	ettings for a DC_20A_r	78A Config	guration		
	20	Mid			n78	Mid		
1,8				All RBs /		CP-	100	
1,0	QPSK	QPSK	20 MHz	REFSENS_ENDC	N/A	OFDM	MHz	All RBs / 0
				_1		QPSK	IVITZ	
	20	Mid			n78	UL/DL		
	20	IVIIU			1170	3387.99		
2 <sup>3</sup>				All RBs /		CP-	100	
	QPSK	QPSK	20 MHz	REFSENS_ENDC	N/A	OFDM	MHz	All RBs / 0
				_1		QPSK	1711 12	
		UL 850 /				UL/DL		
	20	DL 809			n78	3358.99		
3 <sup>4</sup>				A 11 DD /	<b>5</b>	5		AH DD /
	ODOK	0.0014		All RBs /	DFT-s-	CP-	10	All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC	OFDM	OFDM	MHz	REFSENS_ENDC
		<u> </u>	Toot C	_   ettings for a DC_21A_r	QPSK	QPSK		_4
		I	rest S	ettings for a DC_ZTA_r	ILAN COUL	UL/DL	Т	
	21	DL 1506			n79	4518		
1 <sup>5</sup>					DFT-s-	4010	+ -	All RBs /
	N/A	QPSK	20 MHz	All RBs / 0	OFDM	QPSK	100	REFSENS_ENDC
	1 N/ /*\	QI JIN	ZU IVII IZ	VII IVD9 / 0	QPSK	QI SIN	MHz	2
						UL/DL	1	
	21	DL 1506			n79	4800		
<b>2</b> <sup>9</sup>					DFT-s-	1000	1	All RBs /
-	N/A	QPSK	20 MHz	All RBs / 0	OFDM	QPSK	100	REFSENS_ENDC
	,, .				QPSK		MHz	2
	2.4	UL 1457.5/				UL/DL		_ <del></del> _
	21	DL 1505.5		n79	4420.5			
3 <sup>4</sup>				All RBs /	DFT-s-	CP-	40	All RBs /
	QPSK	QPSK	5 MHz	REFSENS_ENDC	OFDM	OFDM	40	REFSENS_ENDC
				_4	QPSK	QPSK	MHz	_4
			Test S	ettings for a DC_26A_r				
	26	High				UL/DL		
	26	High			n41	2524.5		
1 <sup>3</sup>				All RBs /		CP-		
	QPSK	QPSK	15 MHz	REFSENS_ENDC_1	N/A	OFDM	50 MHz	All RBs / 0
				NEI SENS_ENDC_I		QPSK		
2,8	26	High		n41	UL/DL			
2,-	20	High			1141	2572		

г г				1			Т	
	QPSK	QPSK	15 MHz	All RBs / REFSENS_ENDC_1	N/A	QPSK	50 MHz	All RBs / 0
	26	UL 839			n41	UL/DL 2562		
34	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC_4	CP- OFDM QPSK		10 MHz	All RBs / REFSENS_EN DC_4
	26	DL 886.6			n41	UL/DL 2660		
4 <sup>5</sup>	QPSK	QPSK	15 MHz	All RBs / REFSENS_LTE	CP- OFDM QPSK	QPSK	100 MHz	All RBs / REFSENS_EN DC_2
		T	est Settings	s for a DC_26A_n77A/[	DC_26A_n7	78A Configu	ration	
	26	High			n77/n7 8	3366		
1 <sup>3</sup>	QPSK	QPSK	15 MHz	All RBs / REFSENS_ENDC_1	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
	26	High			n77/n7 8	3446.01		
2,8	QPSK	QPSK	15 MHz	All RBs / REFSENS_ENDC_1	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
3 <sup>4</sup> -	26	UL 836.5			n77/n7 8	UL/DL 3391.00 5		
3.	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC_4	CP- OFDM QPSK		10 MHz	All RBs / REFSENS_EN DC_4
			Test	Settings for a DC_26A	_n79A Con	figuration		
	26	High			n79	UL/DL 4432.5		
15	N/A	QPSK	15 MHz	All RBs / 0	CP- OFDM QPSK	QPSK	60 MHz	All RBs / REFSENS_EN DC_2
2 <sup>2,</sup>	26	High			n79	UL/DL 4470.51		
9	N/A	QPSK	15 MHz	All RBs / 0	CP- OFDM QPSK	QPSK	60 MHz	All RBs / REFSENS_EN DC_2
		•	Test	Settings for a DC_28A		_		
	28	High			n5	Low		
1 <sup>6</sup>	QPSK	QPSK	20MHz	All RBs / REFSENS_ENDC_3		CP- OFDM QPSK	20 MHz	All RBs / 0
		T		s for a DC_28A_n77A/[			ration	
	28	Low		Test ID 4 only apply to	n77/n78	n77 <b>A)</b> UL/DL 3540		
1 <sup>3</sup>	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC_1	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
	28	Low			n77/n78	Low		
28	QPSK	QPSK	10 MHz	All RBs / REFSENS_ENDC_1	N/A	CP- OFDM QPSK	100 MHz	All RBs / 0
34	28	UL 705.5 / DL 760.5			n77/n78	UL/DL 3582.495		
	QPSK	QPSK	5 MHz	All RBs / REFSENS_ENDC_4	CP- OFDM QPSK	CP- OFDM QPSK	10 MHz	All RBs / REFSENS_END C_4

				<u> </u>				UL/DL		
	28		Low				n77	3815.01		
<b>4</b> <sup>5</sup>							CP-	CP-		All RBs /
	N/A	.   '	QPSK	10 MHz	All RBs / 0		OFDM	OFDM	100 MHz	REFSENS_END
				Tost 9	Settings for a DC_3	204 7	QPSK	QPSK		C_2
	30		Low	1621		DUA_I	n66	High		
1 <sup>6</sup>	- 00		LOW				DFT-s-			All RBs /
10	N/A		QPSK	10 MHz	All RBs / 0		OFDM		40 MHz	REFSENS_EN
				T16	)-11: f DO -1	10.4	QPSK			DC_3
				rest	Settings for a DC_4	IUA_r	178A Con	UL/DL		
	40		Mid				n78	3525		
1 <sup>5</sup>							DFT-s-			All RBs /
	N/A		QPSK	20 MHz	All RBs / 0		OFDM		20 MHz	REFSENS_EN
	40		Low				QPSK n78	QPSK Mid		DC_2
-	40		Low				DFT-s-			All RBs /
2,9	QPSk		QPSK	20 MHz	All RBs /	<b>^</b> ^	OFDM		100 MHz	REFSENS_EN
					REFSENS_END		QPSK	QPSK		DC_2
<u> </u>			Te	st Settings	for a DC_41A_n77	'A/DC			ation	
	41		Low				n77/n7 8	UL/DL 3750		
1 <sup>5</sup>		-					DFT-s-			All RBs /
•	N/A		QPSK	20 MHz	All RBs / 0		OFDM		100 MHz	REFSENS_EN
							QPSK			DC_2
	41		High				n77/n7	Low		
2 <sup>6</sup>			3				8 DFT-s-			All RBs /
	N/A		QPSK	20 MHz	All RBs / 0		OFDM		100 MHz	REFSENS_EN
	, .		α. σ. τ		7 1 120 7 0		QPSK			DC_3
	41		High				n77/n7	Low		
36	71		riigiri				8			
3°	QPSk		QPSK	20MHz	All RBs /		N/A	CP- OFDM	100 MHz	All RBs / 0
	Qi Oi	`	QI OIX	ZOIVII IZ	REFSENS_END	C_3	14//	QPSK	100 1011 12	711110370
		•		Test S	Settings for a DC_4	8A_r	166A Con			
		48	UL/DL				n66	UL 1760		
1 <sup>3</sup>			3555					MHZ CP-		All RBs /
'	1	N/A	QPSK	10	All RBs / 0	DFT-s-OFDM		OFDM	40 MHz	REFSENS_EN
				MHz		QPSK		QPSK		DC_1
		48	UL/DL				n66	UL 1770		
2 <sup>3</sup>	-		3565	-						All DDs /
2°	N	√A	QPSK	10	All RBs / 0		Γ-s-OFDM	CP- OFDM	40 MHz	All RBs / REFSENS_EN
		-// 1	<u> </u>	MHz	711.2070		QPSK	QPSK	I S IVII IZ	DC_1
		48	UL/DL				n66	UL1760		_
28	<u> </u>	ر،	3600				1100			All DD /
38		N/A	QPSK	10	All RBs / 0		Γ-s-OFDM	CP- OFDM	40 MHz	All RBs / REFSENS_EN
	'	<b>v</b> / / ¯ ¯ ¯	QI SIN	MHz	All IVDS / U		QPSK	QPSK	TO IVII IZ	DC_1
			UL/DL					UL 1715		
	-   -	48	3630				n66	/ DL		
44	-				All RBs /			2115 CP-		All RBs /
	O	PSK	QPSK	20	REFSENS_END		Γ-s-OFDM	OFDM	5 MHz	REFSENS_EN
				MHz	C_4		QPSK	QPSK		DC_4
					Settings for a DC_	66A_	n2A Conf	iguration		
		ee	UL1775				ກາ	UL 1855		
		66	DL2175				n2	DL 1935		
14, 10			222170		All RBs /	P		CD-		All RBs /
	Q	PSK	QPSK	5 MHz	REFSENS_END		Г-s-OFDM OPSK	OFDM	5 MHz	REFSENS_EN
					C_4	QPSK QPSK		QPSK		DC_4

		1	1					
	66	UL 1750/			n2	UL 1883.3 /		
4.10	00	DL 2150			112	DL 1963.3		
2 <sup>4, 10</sup>				All RBs /	DET OFFILE	CP-		All RBs /
	QPSK	QPSK	5 MHz	REFSENS_END	DFT-s-OFDM QPSK	OFDM	5 MHz	REFSENS_EN
				C_4		QPSK		DC_4
		1 1	Test S	Settings for a DC_6	66A_n5A Config	guration	<del></del>	
		UL 1721/				111 020/		
	66	DL			n5	UL 838/ DL 883		
14		2121				DL 000		
				All RBs /	DFT-s-OFDM	CP-		All RBs /
	QPSK	QPSK	5 MHz	REFSENS_END	QPSK	OFDM	5 MHz	REFSENS_EN
			T10	C_4		QPSK		DC_4
		LII 4750/	lest S	ettings for a DC_6	6A_n/1A Confi			
	66	UL 1750/ DL 2150			n71	UL 675/ DL 629		
14	0.70	DL 2100		All RBs /		CP-		All RBs /
	QPS	QPSK	5 MHz	REFSENS_END	DFT-s-OFDM	OFDM	5 MHz	REFSENS_EN
	K			C_4	QPSK	QPSK		DC_4
			Test S	ettings for a DC_6	6A_n77A Confi		T	I
	66	UL 1720			n77	UL/DL 3440.01		
13				All RBs /		CP-		
	QPS	QPSK	20	REFSENS_END	N/A	OFDM	100 MHz	All RBs / 0
	K			C_1		QPSK		
	66	UL 1720			n77	UL/DL		
<b>2</b> <sup>3</sup>				All DD /		3410		
23	QPS	QPSK	20	All RBs / REFSENS_END	N/A	CP- OFDM	20 MHz	All RBs / 0
	K	QFSK	20	C 1	IN/A	QPSK	20 1011 12	All NDS / U
	66	III Mid		<u> </u>	n77	UL/DL		
	66	UL Mid			n77	Mid		
38	QPS	00014	00	All RBs /	N1/A	CP-	400 1411	AH DD / 0
	K	QPSK	20	REFSENS_END C_1	N/A	OFDM QPSK	100 MHz	All RBs / 0
				<u> </u>		UL/DL		
	66	UL 1775/			n77	3949.99		
44		DL 2175				5		
4	QPS			All RBs /	DFT-s-OFDM	CP-		All RBs /
	K	QPSK	5 MHz	REFSENS_END	QPSK	OFDM	10 MHz	REFSENS_EN
		UL 1760 /		C_4		QPSK UL/DL		DC_4
	66	DL 2160			n77	3720		
5 <sup>4</sup>	ODC			All RBs /	DET a OFDIA	CP-		All RBs /
	QPS K	QPSK	5 MHz	REFSENS_END	DFT-s-OFDM QPSK	OFDM	10 MHz	REFSENS_EN
	IX		<u> </u>	C_4		QPSK		DC_4
			Test S	ettings for a DC_6	6A_n78A Confi ⊺		1	
	66	UL 1755			n78	UL/DL 3510		
13				All RBs /		CP-		
	QPS K	QPSK	20	REFSENS_END	N/A	OFDM	100 MHz	All RBs / 0
	N.		MHz	C_1		QPSK		
	66	UL 1755			n78	UL/DL		
<b>2</b> <sup>3</sup>		All RBs /			3480 CP-			
2 '	QPS	QPSK	20	REFSENS_END	N/A	OFDM	20 MHz	All RBs / 0
	K	K   IVIHZ   C_1		,, .	QPSK			
	66 UL 1730/		n78	UL/DL				
	00	DL2130			11/0	3660		= -
34	QPS	ODOV	5	All RBs /	DFT-s-OFDM	CP-	40 14 1-	All RBs /
	K	QPSK	MHz	REFSENS_END C_4	QPSK	OFDM QPSK	10 MHz	REFSENS_EN DC_4
1	1		1	U_ <del>4</del>	1	Wi-Oil	1	DO_4

NOTE 1: REFSENS\_LTE refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.3-2 of TS 36.521-1 [10].

REFSENS\_NR refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.2.4.1-3 of TS 38.521-1 [8].

REFSENS\_ENDC\_1 refers to the Uplink RB allocation for reference sensitivity exceptions due to UL harmonic interference according to table 7.3B.2.0.3.1-2.

REFSENS\_ENDC\_2 refers to the Uplink RB allocation for reference sensitivity exceptions due to receiver harmonic mixing according to table 7.3B.2.0.3.2-2.

REFSENS\_ENDC\_3 refers to the Uplink RB allocation for reference sensitivity exceptions due to cross band isolation according to table 7.3B.2.0.3.4-2.

REFSENS\_ENDC\_4 refers to the Uplink RB allocation for reference sensitivity exceptions due to dual uplink operation for ENDC according to table 7.3B.2.0.3.5.1-1 for PC3 and table 7.3B.2.0.3.5.1-1a for PC2.

- NOTE 2: Void
- NOTE 3: Test ID with UL harmonic exception
- NOTE 4: Test ID with 2UL intermodulation exception
- NOTE 5: Test ID with UL receiver harmonic mixing
- NOTE 6: Test ID with UL cross band isolation
- NOTE 7: Void
- NOTE 8: Test ID with UL harmonic exception avoided
- NOTE 9: Test ID with UL receiving harmonic mixing exception avoided
- NOTE 10: Only applicable to UEs not supporting UE capability singleUL-Transmission.
- NOTE 11: Test ID with Cross band isolation exception avoided, which is only applicable to DC\_1\_n3, DC\_3\_n1 and DC\_3\_n84.
- NOTE 12: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected.
- NOTE 13: For a UE which supports this band combination only when the Band n77 frequency range restriction defined in NOTE 12 of Table 5.2-1 from TS 38.101-1 applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.
- NOTE 14: If the NR frequency does not match to a valid NR-ARFCN, apply the closest NR frequency with a valid NR-ARFCN.
  - 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for TE diagram and clause A.3.2 for UE diagram.
  - 2. The parameter settings for NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
  - 4. NR downlink signals are initially set up according to Annex C.0, C.1, C.2, C.3.1, and uplink signals according to Annex G.0, G.1, G.2, and G.3.1 of TS 38.521-1 [8].
  - 5. E-UTRA downlink signals are initially set up according to Annex C.0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0 of TS 36.521-1 [10].
  - 6. The DL and UL Reference Measurement channels are set according to Tables 7.3B.2.3.4.2.1-0 to 7.3B.2.3.4.2.1-6 for E-UTRA CG and NR CG.
  - 7. NR propagation conditions are set according to Annex B.0 of TS 38.521-1 [8]. E-UTRA propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
  - 8. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.3B.2.3.4.2.3.
  - 9. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6. Step 9 only applicable to the test configuration in Table 7.3B.2.3.4.2.1-0.

### 7.3B.2.3.4.2.2 Test procedure

For test points in Table 7.3B.2.3.4.2.1-0:

1. NR SS transmits PDSCH via PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.3B.2.3.4.2.1-0 on the NR CC. The NR SS sends downlink MAC padding bits on the DL RMC.

- 2. NR SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.3B.2.3.4.2.1-0 Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the appropriate REFSENS value defined in TS 38.521-1 [8] Table 7.3.2.5-1 for NR band. Send continuously uplink power control "up" commands in the uplink scheduling information to both carriers to ensure the UE transmits PUMAX level for at least the duration of the Throughput measurement.
- 4. Measure the average throughput of the NR carrier for a duration sufficient to achieve statistical significance according to Annex H.2 of TS 38.521-1 [8] for NR band.

For test points in Table 7.3B.2.3.4.2.1-6:

- 1. SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.3B.2.3.4.2.1-6 on the E-UTRA CC and NR CC. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.3B.2.3.4.2.1-6 on the E-UTRA CC and NR CC. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level for the E-UTRA CC and NR CC to the appropriate REFSENS value defined in Tables 7.3B.2.3.5-1 to 7.3B.2.3.5-4. Send continuously uplink power control "up" commands in the uplink scheduling information to both carriers to ensure the UE transmits PUMAX level for at least the duration of the Throughput measurement.
- 4. Measure the average throughput of both NR and E-UTRA for a duration sufficient to achieve statistical significance according to Annex H.2 of TS 38.521-1 [8] for NR band, and Annex G.2 of TS 36.521-1 [10] for EUTRA band.

#### 7.3B.2.3.4.2.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED for NR band.

Message contents exceptions for E-UTRA band are according to TS 36.521-1 [10] clause 7.3.4.3 for each network signalling value. Message contents exceptions for NR band are according to TS 38.521-1 [8] clause 7.3.2.4.3 for each network signalling value.

For test points with NOTE 4 in Table 7.3B.2.3.4.2.1-6, the following message exception applies:

Table 7.3B.2.3.4.2.3-1: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table 4.6.1-8											
Information Element	Value/remark	Comment	Condition								
p-MaxEUTRA-r15	23		Power Class 2 UE								
p-MaxEOTRA-ITS	20		Power Class 3 UE								

Table 7.3B.2.3.4.2.3-2: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106										
Information Element	Value/remark	Comment	Condition							
n ND FD4	23		Power Class 2 UE							
p-NR-FR1	20		Power Class 3 UE							

#### 7.3B.2.3.5 Test requirement

For inter-band EN-DC configurations affected by reference sensitivity exceptions, when test points without NOTE 8, 9 and 11 in Table 7.3B.2.3.4.2.1-6 are tested, the throughput of each CG shall be  $\geq$  95% of the maximum throughput for the reference receive power level specified in Table 7.3B.2.3.5-1, Table 7.3B.2.3.5-2, Table 7.3B.2.3.5-3, Table 7.3B.2.3.5-4 and Table 7.3B.2.3.5-5 for MSDs due to uplink harmonic, harmonic mixing, cross

band isolation for PC3 EN-DC, cross band isolation for PC2 EN-DC, dual uplinks for PC3 EN-DC and dual uplink operation for PC2 EN-DC, respectively. For a given EN-DC combo, if more than one category of MSD applies, UE shall pass all requirement.

For test points with NOTE 8, 9 or 11 in Table 7.3B.2.3.4.2.1-6, reference sensitivity test requirements are specified in Table 7.3.2.5-1 in TS 38.521-1 [8] for the NR CC, and Table 7.3.5-1 in TS 36.521-1 [10] for E-UTRA CC.

Reference sensitivity test requirements for test points in Table 7.3B.2.3.4.2.1-0 are specified in Table 7.3.2.5-1 in TS 38.521-1 [8].

For the UE which supports inter-band EN-DC, the minimum requirement for reference sensitivity in Table 7.3.2.5-1 of TS 38.521-1 [8] for NR band and Table 7.3.5-1 of TS 36.521-1 [10] for EUTRA band, shall be increased by the amount given in  $\Delta R_{IB,c}$  defined in clause 7.3B.3.3 for the applicable two, three, four and five bands operation.

Table 7.3B.2.3.5-1: Reference sensitivity due to UL harmonic for EN-DC in NR FR1

UL ban d	DL band	SCS (kHz )	5 MHz (dBm)	10 MHz (dBm)	15 MHz (dBm)				40 MHz (dBm)					100 MHz (dBm)
		15		-71.4	-71.4	-71.3	,	,	-71.2	-71.3				
				+TT -71.7	+TT -71.5	+TT -71.5			+TT -71.3	+TT -71.4	-71.4	-71.3	-71.3	-71.3
	n77 <sup>2</sup>	30		+TT	+TT	+TT			+TT	+TT	+TT	+TT	+TT	+TT
		60		-72.1 +TT	-71.8 +TT	-71.7 +TT			-71.5 +TT	-71.5 +TT	-71.5 +TT	-71.4 +TT	-71.4 +TT	-71.4 +TT
1, 3		15		-94.2	-92.7	-91.9								
				+TT -94.5	+TT -92.8	+TT -92.1								
	n77 <sup>3</sup>	30		+TT	+TT	+TT								
		60		-94.9 +TT	-93.1 +TT	-92.3 +TT								
		15		-71.4	-71.4	-71.3			-71.2	-71.3				
	n77 <sup>2,</sup>			+TT -71.7	+TT -71.5	+TT -71.5			+TT -71.3	+TT -71.4	-71.4	-71.3	-71.3	-71.3
	13	30		+TT	+TT	+TT			+TT	+TT	+TT	+TT	+TT	+TT
		60		-72.1 +TT	-71.8 +TT	-71.7 +TT			-71.5 +TT	-71.5 +TT	-71.5 +TT	-71.4 +TT	-71.4 +TT	-71.4 +TT
2		15		-94.2	-92.7	-91.9								
				+TT -94.5	+TT -92.8	+TT -92.1								
	n77 <sup>3</sup>	30		+TT	+TT	+TT								
		60		-94.9 +TT	-93.1 +TT	-92.3 +TT								
		15		- 71.9+T	-71.9	-71.8			-71.7	-71.8 +TT				
		15		Т	-71.9 +TT	+TT			+TT	+11				
2	n78²	30		-72.2 +TT	-72.0 +TT	-72.0 +TT			-71.8 +TT	-71.9 +TT	-71.9 +TT	-71.8 +TT	-71.8 +TT	-71.8 +TT
		60		-72.6 +TT	-72.3 +TT	-72.2 +TT			-72.0 +TT	-72.0 +TT	-72.0 +TT	-71.9 +TT	-71.9 +TT	-71.9 +TT
		15		-94.7	-93.2	-92.4			TII	TII	TII	TII	TII	TII
		13		+TT -94.9	+TT -93.3	+TT -92.6								
2	n78³	30		-94.9 +TT	-93.3 +TT	-92.6 +TT								
		60		95.4 +TT	-93.6 +TT	-92.8 +TT								
				-71.9	-71.9	-71.8			-71.7	-71.8				
		15		+TT -74.1	+TT -74.1	+TT -74.0			+TT -73.9	+TT -74.0				
		13		+TT <sup>15</sup>	+TT <sup>15</sup>	+TT <sup>1</sup>			+TT <sup>1</sup> 5	+TT <sup>1</sup> 5				
				-72.2 +TT	-72.0 +TT	-72.0 +TT			-71.8 +TT	-71.9 +TT	-71.9 +TT	-71.8 +TT	-71.8 +TT	-71.8 +TT
	n78²	30		-74.4	-74.2	-74.2			-74.0	-74.1		-74.0	-74.0	-74.0
	•			+TT <sup>15</sup>	+TT <sup>15</sup>	+TT <sup>1</sup> 5			+TT <sup>1</sup>	+TT <sup>1</sup>	74.1 +TT <sup>1</sup>	+TT <sup>1</sup>	+TT <sup>1</sup> 5	+TT <sup>1</sup>
				-72.6 +TT	-72.3 +TT	-72.2 +TT			-72.0 +TT	-72.0 +TT	-72.0 +TT	-71.9 +TT	-71.9 +TT	-71.9 +TT
3		60		-74.8	-74.5	-74.4			-74.2	-74.2	-74.2	-74.1	-74.1	-74.1
				+TT <sup>15</sup>	+TT <sup>15</sup>	+TT <sup>1</sup>			+TT <sup>1</sup>	+TT <sup>1</sup>	+TT <sup>1</sup>	+TT <sup>1</sup>	+TT <sup>1</sup>	+TT <sup>1</sup> 5
				-94.7 +TT	-93.2 +TT	-92.4 +TT								
		15		-96.9 +TT <sup>15</sup>	-95.4 +TT <sup>15</sup>	-94.6 +TT <sup>1</sup>								
	n78³			-95.0	-93.3	-92.6								
		30		+TT -97.2	+TT -95.5	+TT -94.8								
				+TT <sup>15</sup>	+TT <sup>15</sup>	+TT <sup>1</sup>								
	1	l	1			5	1	Ì	I	Ī			1	

				1				1	1	•			1
				-95.4	-93.6	-92.8							
		00		+TT	+TT	+TT							
		60		-97.6 +TT <sup>15</sup>	-95.8 +TT <sup>15</sup>	-95.0 +TT <sup>1</sup>							
				<b>TII</b>	<b>T</b> 11	5							
		15		-84.2	-84.4			-84.2	-84.4				
		15		+TT	+TT			+TT	+TT				
5	n78	30		-84.3	-84.5	-84.4		-84.3	-84.5	-84.4	-84.3	-84.0	-84.2
				+TT	+TT -84.6	+TT		+TT -84.5	+TT	+TT -84.5	+TT	+TT	+TT -84.3
		60		-84.5 +TT	-64.6 +TT	-84.5 +TT		-64.5 +TT	-84.6 +TT	-64.5 +TT	-84.4 +TT	-84.1 +TT	-64.3 +TT
				-84.5	-84.4	-84.2		-84.0	-83.9				
	n77 <sup>6,</sup>	15		+TT	+TT	+TT		+TT	+TT				
8	7	30		-84.8	-84.5	-84.4		-84.1	-84.0	-83.9	-83.8	-83.5	-83.7
"	n78 <sup>6,</sup>	- 00		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
	,	60		-85.2 +TT	-84.8 +TT	-84.6 +TT		-84.3 +TT	-84.1 +TT	-84.0 +TT	-83.9 +TT	-83.6 +TT	-83.8 +TT
				-81.8	-81.7	-81.7		-81.6	-81.5	711	TII	TII	711
		15		+TT	+TT	+TT		+TT	+TT				
8	n41	30		-82.1	-81.8	-81.9		-81.7	-81.6	-81.4	-81.3	-81.2	-81.2
0	1141	30		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
		60		-82.5	-82.1	-81.1		-81.9	-81.7	-81.6	-81.3	-81.2	-81.2
				+TT	+TT	+TT		+TT -82.8	+TT	+TT	+TT	+TT	+TT
		15						-82.8 +TT	-82.4 +TT				
	n79 <sup>4,</sup>							-82.9	-82.5	-82.3	-81.7		-81.2
8	5	30						+TT	+TT	+TT	+TT		+TT
		60						-83.1	-82.6	-82.4	-81.8		-81.3
								+TT	+TT	+TT	+TT		+TT
		15	- 89.	-88.8	-88.3	-87.8		-87.7					
		13	5	+TT	+TT	+TT		+TT					
12	n66		+TT	00.4	00.4	00.0		07.0					
		30		-89.1 +TT	-88.4 +TT	-88.0 +TT		-87.8 +TT					
				-89.5	-88.7	-88.2		-87.9					
		60		+TT	+TT	+TT		+TT					
		15		-85.4	-85.1	-84.9		-84.9	-84.9				
				+TT	+TT	+TT		+TT	+TT	04.0	04.0	04.0	04.0
12	n78	30		-85.7 +TT	-85.2 +TT	-85.1 +TT		-85.0 +TT	-85.0 +TT	-84.9 +TT	-84.9 +TT	-84.9 +TT	-84.9 +TT
				-86.1	-85.5	-85.3		-85.2	-85.1	-85.0	-85.0	-85.0	-85.0
		60		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
						_		_	_				
		15		-84.9	-84.6	84.4		84.4	84.4				
				+TT	+TT	+TT		+TT	+TT				
						-		-	_	_	_	_	_
13	n77 <sup>4,</sup>	30		05.2	017				0/1	84.4		0/1/1	84.4
13	5	30		-85.2	-84.7	84.6		84.5	84.5		84.4	84.4	
				+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
						-		-	_	-	-	_	-
		60		-85.6	-85	84.8		84.7	84.6	84.5	84.5	84.5	84.5
				+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
		15		-84.9	-84.6	-84.4		-84.4	-84.4				
10	n774	-		+TT	+TT	+TT		+TT	+TT	0.4.4	0.4.4	011	044
18,	n77 <sup>4,</sup>	30		-85.2 +TT	-84.7 +TT	-84.6 +TT		-84.5 +TT	-84.5 +TT	-84.4 +TT	-84.4 +TT	-84.4 +TT	-84.4 +TT
19				-85.6	-85.0	-84.8		-84.7	-84.6	-84.5	-84.5	-84.5	-84.5
		60		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
			-										
		15	72. 2										
28	n51		+TT										
		30											
						1							
1		60	1	1		1	ĺ						

										1		,	
	774	15		-84.9	-84.6	-84.4		-84.4	-84.4				
	n77 <sup>4,</sup>			+TT -85.2	+TT -84.7	+TT -84.6		+TT -84.5	+TT -84.5	-84.4	-84.4	-84.4	-84.4
28	n78 <sup>4,</sup>	30		+TT	+TT	+TT		-64.5 +TT	+TT	-04.4 +TT	+TT	+TT	-04.4 +TT
	5			-85.6	-85.0	-84.8		-84.7	-84.6	-84.5	-84.5	-84.5	-84.5
		60		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
		15		-84.5	-84.4	-84.2		-83.1					
	n77 <sup>6,</sup>	13		+TT	+TT	+TT		+TT					
20	7	30		-84.8	-84.5	-84.4		-83.2					
	n78 <sup>6,</sup>			+TT	+TT	+TT		+TT					
		60		-85.2 +TT	-84.8 +TT	-84.6 +TT		-83.4 +TT					
				-84.5	-84.6	-84.4		-83.6	-83.3	3.9	3.1	2.7	
		15		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	
200	- 11	20		-84.8	-84.7	-84.6		-83.7	-83.4	-83.0	-82.5	-82.4	
26	n41	30		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	
		60		-85.2	-85.0	-84.8		-83.9	-83.5	-83.2	-82.5	-82.4	
		00		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	
		15		-85.0	-84.9	-84.7		-83.6	-84.6				
	- <b>77</b> 6			+TT	+TT	+TT		+TT	+TT				
	n77 <sup>6,</sup>	30		-85.3 +TT	- 85.0+T	-84.9 +TT		-83.7 +TT	-84.7	-84.7	-84.6	-84.6	-84.6
26	n78 <sup>6,</sup>	30		+11	7 T	+11		+11	+TT	+TT	+TT	+TT	+TT
	7			-85.7	85.3			-83.9					
		60		+TT	+TT	85.1		+TT	-84.8	-84.8	-84.7	-84.7	-84.7
						+TT			+TT	+TT	+TT	+TT	+TT
		15		-84.9	-84.6	-84.4		-84.4	-84.4				
		15		+TT	+TT	+TT		+TT	+TT				
26	n77 <sup>4,</sup>	30		-85.2	-84.7	-84.6		-84.5	-84.5	-84.4	-84.4	-85.6	-84.4
20	5	- 00		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
		60		-85.6	-85.0	-84.8		-84.7	-84.6	-84.5	-84.5	-85.7	-84.5
				+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
n28	18,9,10	N/A	89. 1	-88.7	-88.3	-88.0							
			<u> </u>										
n71	2 <sup>11</sup>	N/A	92.	-93.3	-91.8	-90.7							
			7										
			-										
n71	212	N/A	95.	-93.3	-91.8	-90.7							
			6										
	_		-		00.4	00.0							
n71	7	N/A	82.	-82.6	-82.4	-82.3							
			7										
						-		-	-				
		15		-71.4	-71.4	71.3		71.2	71.3				
				+TT	+TT	+TT		+TT	+TT				
						_		-	-	-	-	_	_
	n77 <sup>2,</sup>	30		-71.7	-71.5	71.5		71.3	71.4	71.4	71.3	71.3	71.3
	13			+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
				T11	<b>TII</b>	+11			+11	+11	+11	+11	<b>TII</b>
						-		-	-	-	_	_	-
		60		-72.1	-71.8	71.7		71.5	71.5	71.5	71.4	71.4	71.4
66				+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
66						-							
		15		-94.2	-92.7	91.9							
				+TT	+TT	+TT							
				111	'	1							
						-							
	n77³	30		-94.5	-92.8	92.1							
				+TT	+TT	+TT							
						-							
1		60		-94.9	-93.1	92.3							
				+TT	+TT	+TT							
1	1	I	1	1 1 1	'''	1 ' 1 1	1	Ī	Ī		Ī	Ī	i

	1		1	74.0	74.0	74.0	1	-4-	74.0	1	1	1	
		15		-71.9	-71.9	-71.8		-71.7	-71.8				
		13		+TT	+TT	+TT		+TT	+TT				
				-	-72.0	-72.0		-71.8	71.0	71.0	74.0	74.0	71.0
	n78²	30		72.2+T	+TT	+TT		+TT	-71.9	-71.9	-71.8	-71.8	-71.8
				Т					+TT	+TT	+TT	+TT	+TT
		60		-72.6	-72.3	-72.2		-72.0	-72.0	-72.0	-71.9	-71.9	-71.9
66		60		+TT	+TT	+TT		+TT	+TT	+TT	+TT	+TT	+TT
		15		-94.7	-93.2	-92.4							
		15		+TT	+TT	+TT							
	n78³	20		-95.0	-93.3	-92.6							
	11/6°	30		+TT	+TT	+TT							
		60		-95.4	-93.6	-92.8							
		60		+TT	+TT	+TT							
	48,2,		-										
n66	13	N/A	70.	-70.6	-70.8	-70.8							
			7										
			-										
n66	48 <sup>,3</sup>	N/A	96.	-93.6	-92.3	-91.6							
			1										

NOTE 1: Void.

NOTE 2: The requirements should be verified for UL EARFCN or NR ARFCN of the aggressor (lower) band (superscript LB) such that  $f_{UL}^{LB} = \left \lfloor f_{DL}^{HB} / 0.2 \right \rfloor 0.1$  in MHz and  $F_{UL\_low}^{LB} + BW_{Channel}^{LB} / 2 \le f_{UL}^{LB} \le F_{UL\_high}^{LB} - BW_{Channel}^{LB} / 2$  with carrier frequency in the victim (higher) band in MHz and the channel bandwidth configured in the lower band.

- NOTE 3: The requirements are only applicable to channel bandwidths no larger than 20 MHz and with a carrier frequency at  $\frac{\pm \left(20 + BW_{Channel}^{HB}/2\right)}{2}$  MHz offset from  $\frac{2f_{UL}^{LB}}{2}$  in the victim (higher band) with  $F_{UL\_low}^{LB} + BW_{Channel}^{LB}/2 \le f_{UL}^{LB} \le F_{UL\_high}^{LB} BW_{Channel}^{LB}/2$ , where  $\frac{BW_{Channel}^{LB}}{2}$  and  $\frac{BW_{Channel}^{HB}}{2}$  are the channel bandwidths configured in the aggressor (lower) and victim (higher) bands in MHz, respectively.
- NOTE 4: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 5<sup>th</sup> transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band.
- NOTE 5: The requirements should be verified for UL EARFCN of the aggressor (lower) band (superscript LB) such that  $f_{UL}^{LB} = \left \lfloor f_{DL}^{HB} / 0.5 \right \rfloor$  0.1 in MHz and  $F_{UL_{low}}^{LB} + BW_{Channel}^{LB} / 2 \le f_{UL}^{LB} \le F_{UL_{high}}^{LB} BW_{Channel}^{LB} / 2$  with carrier frequency in the victim (higher) band in MHz and the channel bandwidth configured in the lower band.
- NOTE 6: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 4<sup>th</sup> transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band.
- NOTE 7: The requirements should be verified for UL EARFCN of the aggressor (lower) band (superscript LB) such that  $f_{UL}^{LB} = \left \lfloor f_{DL}^{HB} / 0.4 \right \rfloor 0.1$  in MHz and  $F_{UL\_low}^{LB} + BW_{Channel}^{LB} / 2 \le f_{UL}^{LB} \le F_{UL\_high}^{LB} BW_{Channel}^{LB} / 2$  with carrier frequency in the victim (higher) band in MHz and the channel bandwidth configured in the lower band.
- NOTE 8: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of a low band for which the 3rd transmitter harmonic is within the downlink transmission bandwidth of a high band.
- NOTE 9 The requirements should be verified for UL EARFCN of a low band (superscript LB) such that in MHz and  $F_{UL\_low}^{LB} + BW_{Channel}^{LB} / 2 \le f_{UL}^{LB} \le F_{UL\_high}^{LB} BW_{Channel}^{LB} / 2$  with the carrier frequency of a high band in MHz and the channel bandwidth configured in the low band.
- NOTE 10: Applicable for the operations with 2 or 4 antenna ports supported in the band with carrier aggregation configured.
- NOTE 11: These requirements apply when the lower edge frequency of the 5 MHz uplink channel in Band 71 is located at or below 668 MHz and the downlink channel in Band 2 is located with its upper edge at 1990 MHz.
- NOTE 12: These requirements apply when the lower edge frequency of the 10 MHz, 15 MHz, or 20 MHz uplink channel in Band 71 is located at or below 668 MHz and the downlink channel in Band 2 is located with its upper edge at 1990 MHz.
- **NOTE 13:**

These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 2nd transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band and a range  $\Delta F_{HD}$  above and below the edge of this downlink transmission bandwidth. The value  $\Delta F_{HD}$  depends on the EN-DC band combination:  $\Delta F_{HD} = 10$  MHz for DC\_1\_n77, DC\_2\_n48, DC\_2\_n77, DC\_42\_n3, DC\_48\_n25, DC\_48\_n66, DC\_66\_n48, DC\_66\_n77, DC\_3\_n77, DC\_3\_n78, DC\_11\_n28 and DC\_28\_n50, DC\_28\_n51, DC\_66\_n78, DC\_25\_n77, DC\_25\_n78.

- NOTE 14: TT is the same as defined in Table 7.3B.2.3.5-1a.
- NOTE 15: Applicable only if operation with 4 antenna ports is supported in the band with EN-DC configured.
- NOTE 16: Void
- NOTE 17: For a UE which supports this band combination only when the Band n77 frequency range restriction defined in NOTE 12 of Table 5.2-1 from TS 38.101-1 applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.

Table 7.3B.2.3.5-1a: Test Tolerance (TT) for RX sensitivity level

f ≤ 3.0GHz	3.0GHz < f ≤ 6.0 GHz
0.7 dB	1.0 dB

Reference sensitivity exceptions due to receiver harmonic mixing for EN-DC in NR FR1, are specified in Table 7.3B.2.3.5-2 with uplink configuration specified in Table 7.3B.2.3.4.2.1-3a to Table 7.3B.2.3.4.2.1-3k for each specific EN-DC combination scenario.

Table 7.3B.2.3.5-2: Reference sensitivity due to receiver harmonic mixing for EN-DC in NR FR1

UL	DL	SCS	5 MU-	10	15 MU-	20 MHz	25 MHz	40	50	60 MU-	80	90	100 MHz
ban d	ban d	(kHz )	MHz (dBm	MHz (dBm	MHz (dBm	(dBm	(dBm	MHz (dBm	MHz (dBm	MHz (dBm	MHz (dBm	MHz (dB	(dBm
		-	)	)	)	)	)	)	)	)	)	m	)
2	n71 <sup>4</sup>	15	-70.4	-70.4	-70.4	-70.4							
			+TT	+TT	+TT	+TT							
		30		-70.7	-70.7	-71.8							
				+TT	+TT	+TT							
		60		-72.4	-72.7	-77.0							
				+TT	+TT	+TT							
n41	26 <sup>4</sup>	N/A	-72.5	-69.5	-69.5	N/A							
n77	2	N/A	-91.2	-89.3	-88.5	-87.6							
			- 93.9 <sup>10</sup>	-92 <sup>10</sup>	- 91.2 <sup>10</sup>	- 90.3 <sup>10</sup>							
77	40	NI/A	93.910			90.3							
n77	13	N/A		-65.3	-65.3								
n77	41 <sup>8</sup>	N/A	-86.9	-83.9	-82.1	-80.9	N/A	N/A	N/A	N/A	N/A	N/A	
n77	28 <sup>2</sup>	N/A	-69.8	-69.8	-69.8	-68.3							
n78	3	N/A	-90.6	-89.3	-88.5	-87.6							
			-	-	-	-							
			93.3 <sup>10</sup>	92.0 <sup>10</sup>	91.2 <sup>10</sup>	90.310							
n78	40	N/A	-86.9	-83.9	-82.1	-80.9							
n78	41 <sup>8</sup>	N/A	-86.9	-83.9	-82.1	-80.9	N/A	N/A	N/A	N/A	N/A	N/A	
n79	19 <sup>2</sup>	N/A	-69.8	-69.8	-69.8								
n79	26 <sup>2</sup>	N/A	-69.8	-69.8	-69.8	N/A	N/A	N/A	N/A	N/A	N/A	_	N/A

- These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (higher) band for which the mixing product due to harmonic of victim (lower) band LO with
- leakage of aggressor (higher) band is within the downlink transmission bandwidth of a victim (lower) band. The requirements should be verified for DL EARFCN of the victim (lower) band (superscript LB) such that  $f_{DL}^{LB} = \left \lfloor f_{UL}^{HB} / 0.5 \right \rfloor 0.1$  with  $f_{DL}^{LB}$  the DL carrier frequency in the lower band and  $f_{UL}^{HB}$  the UL carrier frequency in the higher band, both in MHz.
- NOTE 3: Void.
- The requirements should be verified for DL EARFCN or NR-ARFCN of the victim (lower) band (superscript LB) such that  $f_{DL}^{IB} = \left| f_{UL}^{HB} / 0.3 \right| 0.1$  with  $f_{DL}^{LB}$  the DL carrier frequency in the lower band and  $f_{UL}^{HB}$  the UL carrier NOTE 4: frequency in the higher band, both in MHz.
- NOTE 5: Void.
- NOTE 6: Void.
- NOTE 7: The requirements should be verified for DL EARFCN of the victim (higher) band (superscript HB) such that  $f_{DL}^{HB} = \left[50 \times f_{UL}^{LB}\right]0.03$  with  $f_{DL}^{HB}$  the DL carrier frequency in the higher band and  $f_{UL}^{LB}$  the UL carrier frequency in the lower band, both in MHz.
- NOTE 8: The requirements should be verified for DL EARFCN of the victim (lower) band (superscript LB) such that  $f_{DL}^{LB}=af_{UL}^{HB}/0.15$ a $0.1f_{DL}^{LB}=af_{UL}^{HB}/0.15$ a0.1 with  $f_{DL}^{LB}$  the DL carrier frequency in the lower band and  $f_{UL}^{HB} f_{DL}^{LB} = a f_{UL}^{HB} / 0.15 a 0.1$  the UL carrier frequency in the higher band, both in MHz.
- NOTE 9: TT is the same as defined in Table 7.3B.2.3.5-1a.
- NOTE 10: Applicable only if operation with 4 antenna ports is supported in the band with EN-DC configured.

Reference sensitivity exceptions due to cross band isolation for EN-DC in NR FR1, are specified in Table 7.3B.2.3.5-3 with uplink configuration specified in Table 7.3B.2.3.4.2.1-4a to Table 7.3B.2.3.4.2.1-4n.

Table 7.3B.2.3.5-3: Reference sensitivity exceptions due to cross band isolation for PC3 EN-DC in NR FR1

E-UTRA or NR Band / Channel bandwidth of the affected DL band															
UL ban d	DL ban d	SC S (kH z)	5 MHz (dB m)	10 MHz (dB m)	15 MHz (dB m)	20 MHz (dB m)	25 MHz (dB m)	30 MHz (dB m)	40 MHz (dB m)	50 MHz (dB m)	60 MHz (dB m)	70 MHz (dB m)	80 MHz (dB m)	90 MHz (dB m)	100 MHz (dB m)
n1	3	N/A	- 93.3	-91	- 89.5	- 88.5									
1	n3	15	-94 +TT	- 91.6 +TT	- 90.1 +TT	- 89.1 +TT	- 88.1 +TT	- 87.4 +TT	- 86.2 +TT						
3	n41	30		- 94.4 +TT	- 92.4 +TT	- 91.3 +TT		- 89.3 +TT	- 88.0 +TT	-87 +TT	- 86.2 +TT		- 84.9 +TT	- 84.4 +TT	- 84.0 +TT
				97.1 +TT <sup>4</sup>	- 95.1 +TT⁴	-94 +TT <sup>4</sup>		- 92.0 +TT <sup>4</sup>	90.7 +TT <sup>4</sup>	- 89.7 +TT <sup>4</sup>	- 88.9 +TT <sup>4</sup>		- 87.6 +TT <sup>4</sup>	- 87.1 +TT <sup>4</sup>	86.7 +TT <sup>4</sup>
n5	28	15	93.3	- 91.8	90.8	-90									
n40	1	N/A	- 91.0	- 88.0	- 86.2	- 85.0									
n41	2	N/A	96.7	93.7	- 91.9	90.7									
n41	3	N/A	3	n41	30	3									
44	0.5	<b>N1/A</b>	-	-	-	-									
n41	25	N/A	95.2	92.2	90.4	89.2									
n77	41 <sup>1</sup>	N/A	92.8	89.8	88.0	86.8									
n41	66	N/A	95.3	92.3	90.5	89.3									
41	n77 3	30		- 87.3 +TT	- 85.3 +TT	- 84.1 +TT			- 82.9 +TT	- 82.9 +TT	- 82.9 +TT		- 82.1 +TT	- 81.7 +TT	- 81.3 +TT
3	n51	15	- 93.6 +TT												
30	n66	15	- 91.2 +TT	- 88.0 +TT	- 86.2 +TT	- 85.0 +TT				- 81.8 +TT					
n78	7 <sup>1</sup>	N/A	93.5	- 90.5	- 88.7	- 87.5									
n78	38	N/A	96.7	93.7	- 91.9	90.7									
n78	41 <sup>1</sup>	N/A	92.8	- 89.8	- 88.0	86.8									
41	n78	30		- 87.8 +TT	- 85.8 +TT	- 84.6 +TT			- 83.4 +TT	- 83.4 +TT	- 83.4 +TT		- 82.6 +TT	- 82.2 +TT	- 81.8 +TT

NOTE 1: Applicable only when harmonic mixing MSD for this combination is not applied.

NOTE 2: TT is the same as defined in Table 7.3B.2.3.5-1a.

NOTE 3: The requirement is modified by -0.5 dB when the assigned UE channel bandwidth is confined within 3300 - 3800 MHz.

NOTE 4: Applicable only if operation with 4 antenna ports is supported in the band with EN-DC configured.

Table 7.3B.2.3.5-3a: Reference sensitivity exceptions due to cross band isolation for PC2 EN-DC in NR FR1

			E-	UTRA c	or NR B	and / Ch	nannel	bandw	idth of	the affe	cted DI	_ band			
UL band	DL band					20 MHz (dBm)	MHz	30 MHz (dBm)	40 MHz (dBm)	50 MHz (dBm)	60 MHz (dBm)	70 MHz (dBm)	80 MHz (dBm)	90 MHz (dBm)	100 MHz (dBm)
3	n41	30		-94.4 +TT	-92.4 +TT	-91.3 +TT		- 89.3 +TT	- 88.0 +TT	- 87.0 +TT	- 86.2 +TT		- 84.9 +TT	-84.4 +TT	- 84.0 +TT
3	1141	30		-97.1 +TT <sup>3</sup>	-95.1 +TT <sup>3</sup>	-94 +TT³		- 92.0 +TT <sup>3</sup>	- 90.7 +TT <sup>3</sup>	- 89.7 +TT <sup>3</sup>	- 88.9 +TT <sup>3</sup>		- 87.6 +TT <sup>3</sup>	-87.1 +TT <sup>3</sup>	- 86.7 +TT <sup>3</sup>
n41	3	N/A	-94.0 - 96.7 <sup>3</sup>	-91.0 - 93.7 <sup>3</sup>	-89.2 - 91.9 <sup>3</sup>	-88.0 - 90.7 <sup>3</sup>									

NOTE 1: Applicable only when harmonic mixing MSD for this combination is not applied. NOTE 2: TT is the same as defined in Table 7.3B.2.3.5-1a.

NOTE 3: Applicable only if operation with 4 antenna ports is supported in the band with EN-DC configured.

Reference sensitivity exceptions due to dual uplink operation for EN-DC in NR FR1, are specified in Table 7.3B.2.3.5-4 with uplink configuration specified in Table 7.3B.2.3.4.2.1-6.

Table 7.3B.2.3.5-4: Reference sensitivity exceptions due to dual uplink operation for PC3 EN-DC in NR FR1 (two bands)

		NF	R or E-UTRA B	and / Chann	el bandw	idth			
EN-DC Configuration	EUTRA or NR band	SCS (kHz)	5 MHz (dBm)	10 MHz (dBm)	15 MHz (dBm)	20 MHz (dBm )	40 MHz (dBm)	IMD order	Duplex mode
DC_1A_n3A	1	N/A	[-76.3]	-	-	-	-	IMD3	FDD
DO_17\_1107\	n3	15	REFSENS		-	-	-	N/A	TDD
	1	N/A	-93.3	-	_	_		IMD4	FDD
DC_1A_n8A	n8	15	REFSENS	_	_	-	-	N/A	FDD
	1	N/A	-69.5	-	-	-	_	IMD2 <sup>3</sup>	FDD
DC_1A_n77A	n77	15	-	REFSEN	-	-	-	N/A	TDD
	1	N/A	-91.3	S -	-	-	_	IMD4-	FDD
DC_1A_n77A		45		REFSEN				N/A	TDD
	n77	15	-	S	-	-	-		
DC_1A_n78A	1	N/A	-91.3	-	-	-	-	IMD4	FDD
20_17(_1767)	n78	15	-	REFSEN S	-	-	-	N/A	TDD
DC_2A_n66A	2	N/A	-77.3	-	-	-	-	IMD3	
2 0_21 (_1.00) (	n66	15	REFSENS	-	-	-	-	N/A	
DC_2A_n66A	2	N/A	REFSENS	-	-	-	-	N/A	
	n66	15	-95.5 +TT	-	-	-	-	IMD5	
DC_2A_n77A	2	N/A	-71.3	-	-	-	-	IMD2	FDD
DC_2A-2A_n77A	n77	15	-	REFSEN S	-	-	-	N/A	TDD
	2	N/A	-89.3	-	-	ı	1	IMD4	FDD
	n77	15	-	REFSEN S	-	-	-	N/A	TDD
	2	N/A	-92.3	-	-		-	IMD5	FDD
	n77	15	-	REFSEN S	-	-	-	N/A	TDD
DC 04 =704	2	N/A	-71.3 <sup>7</sup>	-	-	-	-	IMD2 <sup>3</sup>	FDD
DC_2A_n78A	n78	15	-	REFSEN S	-	-	-	-	TDD
DC 04 =704	2	N/A	-89.3 <sup>7</sup>	-	-	-	-	N/A	FDD
DC_2A_n78A	n78	15	-	REFSEN S	-	-	-	IMD4 <sup>3</sup>	TDD
DC 24 ~44	3	N/A	REFSENS	-	-	-	-	N/A	FDD
DC_3A_n1A	n1	15	-74.0+TT	-	-	-	-	IMD3	FDD
	3	N/A		-89.3	-	-	-	IMD4	FDD
	n5	15	REFSENS	-	-	-	-	N/A	FDD
DC_3A_n5A	3	N/A		REFSEN S	-	-	-	N/A	FDD
	n5	15	-74.0+TT	-	-	-	-	IMD23	FDD
DC_3A_n7A	3	N/A	REFSENS	-84.6	-	-	-	-	
DO_3A_IIIA	n7	15	-	+TT <sup>5</sup>	-	-	-		- FDD
	3	N/A	-	REFSEN S	-	-	-	N/A	FDD
DC_3A_n8A	n8	15	-88.3	-	-	-	-	IMD4 <sup>3</sup>	FDD
	3	N/A	-	-86.9	-	-	-	IMD5	FDD
	n8	15	REFSENS	-	-	-	-	N/A	FDD
CA_3A-n20A	3	N/A	-92.3	-	-	-	-	IMD4	FDD
UN_UN-112UN	n20	15	REFSENS	-	-	-	-	N/A	FDD

	3	N/A	REFSENS	-	-	-	-	N/A	FDD
	n20	15	-88.0+TT	-	-	-	-	IMD4	FDD
DO 04	3	N/A	-88.1	-	-	-	-	IMD4	FDD
DC_3A_n41A		, .	-90.8 <sup>7</sup>	-	-	-	-		
DC_3A_n77A,			00.0						
DC_3A_n77(2A), DC_3A_SUL_n7	3	N/A	-70.3	-	-	-	-	IMD2 <sup>3</sup>	FDD
7A-n80A, DC_3A_n78A, DC_3A_SUL_n7		IN//A	-70.6 <sup>7</sup>	-	-	-	-	IIVIDZ	100
8A-n80A, DC_3A_n78(2A), DC_3C_n78A DC_3C_n78(2A)	n77, n78	15	-	REFSEN S	-	-	-	N/A	TDD
DC_3A_n77A, DC_3A_n77(2A), DC_3C_n77A, DC_3C_n77(2A),	3	N/A	-88.3	-	-	1	-	IMD4 <sup>3</sup>	FDD
DC_3A_SUL_n7 7A-n80A, DC_3A_n78A, DC_3A_SUL_n7	3	14/71	-88.3 <sup>7</sup>	-	-	-	-	IIVIDT	- 100
8A-n80A, DC_3A_n78(2A), DC_3C_n78A DC_3C_n78(2A)	n77, n78	15	-	REFSEN S	-	-	-	N/A	TDD
DC_5A_n66A	5	N/A	-67.3	-	-	-	-	IMD2 <sup>3</sup>	FDD
	n66		REFSENS	-	-	-	-	N/A	FDD
DC_5A_n77A8	5	N/A	-89	-	-	-	1	IMD4	FDD
	n77	15	-	REFSEN S	-	-	-	N/A	TDD
	5	N/A	-91.8	-	-	-	-	IMD5	FDD
	n77	15	-	REFSEN S	-	-	-	N/A	TDD
	5	N/A	-89.0	-	-	-	-	IMD4	FDD
DC_5A_n78A	n78	15	-	REFSEN S	-	-	-	N/A	TDD
DC 74 =24	7	N/A	-	-81.3	-	-	-	IMD4	FDD
DC_7A_n3A	n3	15	REFSENS	-	-	-	-	N/A	FDD
DC_7A_n5A	7	N/A		REFSEN S	-	-	-	N/A	FDD
	n5	15	-86.0+TT	-	-	-	-	IMD3 <sup>3</sup>	FDD
DC 74 ~004	7	N/A	-	-79.3	-	-	-	IMD4	FDD
DC_7A_n66A	n66	15	REFSENS	-		-	-	N/A	TDD
	7	N/A	-90.2	-	-	-	-	IMD4	FDD
DC_7A_n77A	n77	15	-	REFSEN S	-	-	-	N/A	TDD
DC 0A 54A	8	N/A	REFSENS	-	-	-	-	N/A	FDD
DC_8A_n1A	n1	15	-94.0 + TT	-	-	-	-	IMD4	FDD
	8	N/A	-88.3	-	ı	ı	-	IMD4 <sup>3</sup>	FDD
DC_8A_n3A	n3	15	-	REFSEN S	-	-	-	N/A	FDD
	8	N/A	REFSENS	-	-	-	-	N/A	FDD
	n3	15	-	-87.4+ TT	-	-	-	IMD5	FDD
	n20	15	-71.3	-	-	-	-	IMD3	FDD
DC_8A_n20A	8	N/A	REFSENS	-	-	-	-	N/A	FDD
DO_OA_HZUA	n20	15	REFSENS	-	-	-	-	N/A	FDD
	8	N/A	-71.3	-	-	-	-	IMD3	FDD
	8	N/A	-84.2	-	-	-	-	IMD3 <sup>3</sup>	FDD
DC_8A_n41A	n41	15	-	REFSEN S	-	-	-	N/A	TDD
DC_8A_n77A	8	N/A	-88.0	-	-	-	-	IMD4	FDD
DC_8A_n78A DC_8A- SUL_n78A-n81A	n77, n78	15	-	REFSEN S	-	-	-	H4	TDD
	8	N/A	-91.5	-	-	-	-	IMD5	FDD

								1	
DC_8A_n79A	70	45					REFSEN	N1/A	TDD
DC_8A-	n79	15	-	-	-	-	S	N/A	TDD
SUL_n79A-n81A	12	N1/A	00.0					IMPE	EDD
DC 10 p70	12	N/A	-90.8	- REFSEN	-	-	-	IMD5	FDD
DC_12_n78	n78	15	-		-	-	-	N/A	TDD
DC_13A_n77A	13	N/A	-90.8	S			-	IMD5	FDD
DC_I3A_IIITA	13	IN/A	-90.8	REFSEN	-		-		TDD
	n77	15	-	S	-	-	-	N/A	וטט
	20	N/A	REFSENS	-	_	-	-	N/A	FDD
	n3	15	-93.0 +TT	_	-	-	-	IMD4	FDD
DC_20A_n3A	20	N/A	-87.3	-	-	-	-	IMD4	FDD
	n3	15	REFSENS	-	-	-	-	N/A	FDD
	20	N/A	-84.3	-	-	-	-	IMD3	FDD
DC_20_n7	n7	15	-	REFSEN				N/A	EDD
	n7	15		S	-	1	•		FDD
DC_20_n8	20	N/A	-71.3	-	-	-	-	IMD3	FDD
DC_20_110	n8	15	-71.3	-	-	-	-	IMD3	FDD
	20	N/A	-85.3	-	-	-	-	IMD4	FDD
	n77	15	_	REFSEN	_	_	-	N/A	TDD
DC_20A_n77A				S					
	20	N/A	-89.8	-	-	-	-	IMD5	FDD
	n77	15	-	REFSEN	-	-	-	N/A	TDD
				S					EDD
DC_20A_n78A,	20	N/A	-74.6	-	•	•	-	IMD4 <sup>4</sup>	FDD
DC_20A-	n78	15	-	REFSEN	_	-	-	N/A	TDD
SUL_n78A-n82A				S	-	-	-		
	21	N/A	-80.9	-	-	-	-	IMD3	FDD
DC_21A_n79A	n79	15	_	_	_	_	REFSEN	N/A	TDD
	_						S		
	28	N/A	-	-79.5	-	-	-	IMD 2	FDD
	n50	15	-	REFSEN	-	-	-	N/A	TDD
		N1/A		S					EDD
DC 00 ~50	28	N/A	-	-88.8	-	-	-	IMD 4	FDD
DC_28_n50	n50	15	-	REFSEN S	-	-	-	N/A	TDD
	28	N/A		-94.3				IMD 5	FDD
	20		-	REFSEN	-	-	-		TDD
	n50	15	-	S	-	-	-	N/A	טטו
CA_28A_n77A,	00	N1/A	00.0					IMPE	
CA_28A_n78A,	28	N/A	-92.3	-	-	-	-	IMD5	FDD
DC_28A-	n77, n78	15		REFSEN		_		N/A	TDD
SUL_n78A-n83A	1177,1170	15	-	S	-	-	-	IN/A	טטו
	40	NI/A		REFSEN				NI/A	TDD
DC_48A_n66A	48	N/A	-	S	-	-	1	N/A	TDD
	n66	15	-95.5 +TT	-	-	-	-	IMD5	FDD
	66	N/A	REFSENS	-	-	-	-	N/A	FDD
DC_66A_n2A	n2	15	-78.0+TT	-	-	-	-	IMD3	FDD
DO_00/\_112/\	66	N/A	-94.8	-	-	-	-	IMD5	FDD
	n2	15	REFSENS	-	-	-	-	N/A	FDD
DC_66A_n5A	66	N/A	-68.8	-	-	-	-	IMD2 <sup>3</sup>	FDD
20_00/(_110/(	n5	15	REFSENS	-	-	-	-	N/A	FDD
	66	N/A	REFSENS	-	-	-	-	N/A	FDD
	n25	15	-76.5+TT	-	-	-	-	IMD3	FDD
DC_66A_n25A	66	N/A	-75.8	-	-	-	-	IMD3	FDD
,	n25	15	REFSENS	-	-	-	-	N/A	FDD
	66	N/A	-94.8	-	-	-	-	IMD5	FDD
	n25	15	REFSENS	-	-	-	-	N/A	FDD
DC_66A_n71A	66	N/A	-93.8	-	-	-	-	IMD4	FDD
	n71	15	REFSENS	-	-	-	-	N/A	FDD
DC_66A_n77A	66	N/A	-67.8	-	-	-	-	IMD2	FDD
	n77	15	-	REFSEN	_	-	-	N/A	TDD
				S					
	66	N/A	-93.8	-	ı	-	-	IMD5	FDD

	n77	15	-	REFSEN S	-	-	-	N/A	TDD
	66	N/A	-93.8	-	-	-	-	IMD5	FDD
DC_66A_n78A	n78	15	-	REFSEN S	-	-	-	N/A	TDD

NOTE 1: E-UTRA carrier shall be set to min(+20 dBm, P<sub>CMAX\_L\_E-UTRA,c</sub>) and NR carrier shall be set to min(+20 dBm,

P<sub>CMAX L.f.c.NR</sub>) as defined in clause 6.2B.4.1.3.

NOTE 2: RBstart = 0

NOTE 3: This band is subject to IMD5 also which MSD is not specified.

NOTE 4: The symbol "REFSENS" in this table refers to the reference sensitivity values for single carrier specified in Table 7.3.5-1 of TS 36.521-1 [10] for 2 antenna port E-UTRA band, Table 7.3\_1.5-1 of TS 36.521-1 [10] for 4 antenna port E-UTRA band, Table 7.3.2.5-1 for 2 antenna port NR band and Table 7.3.2.5-2 for 4 antenna port NR band.

NOTE 5: Void

NOTE 6: TT is the same as defined in Table 7.3B.2.3.5-1a.

NOTE 7: Applicable only if operation with 4 antenna ports is supported in the band with EN-DC configured.

NOTE 8: For a UE which supports this band combination only when the Band n77 frequency range restriction

defined in NOTE 12 of Table 5.2-1 from TS 38.101-1 applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.

Table 7.3B.2.3.5-5: Reference sensitivity exceptions due to dual uplink operation for PC2 EN-DC in NR FR1 (two bands)

			NR or E-UTRA Band	d / Channel b	andwidth				
EN-DC Configuration	EUTRA or NR band	SCS (kHz)	5 MHz (dBm)	10 MHz (dBm)	15 MHz (dBm))	20 MHz (dBm)	40 MHz (dBm)	IMD order)	Duplex mode
DC_1A_n78A	1	N/A	REFSENS-17.8	-	-	-	-	IMD4	
	n78	15	-	REFSENS	-	-	1	N/A	TDD
DC_2A_n77A	2	N/A	-65.2	-	-	-	-	IMD2	FDD
DC_2A- 2A_n77A			-65.15 <sup>7</sup>						
DC_2A_n77C	n77	15	-	REFSENS	-	-	-	N/A	TDD
DC_2A- 2A_n77C	2	N/A	-78.2	-	-	-	-	IMD4 <sup>9</sup>	FDD
			-78.15 <sup>7</sup>						
	n77	15	-	REFSENS	-	-	-	N/A	TDD
DC_3A_n41A	3	N/A	-77.9	-	-	-	-	IMD4	FDD
			-80.6 <sup>7</sup>	-	-	-	-		
	n41	15	-	REFSENS	-	-	-	N/A	TDD
	3	N/A	-64.4	-	-	-	-	IMD2	FDD
DC_3A_n78A			-67.1 <sup>7</sup>	-	-	-	-		
	n78	15	-	REFSENS	-	-	1	N/A	TDD
	0	N1/A	-77.8	-	-	-	-	11.45.4	<b>EDD</b>
DC_3A_n78A	3	N/A	-80.5 <sup>7</sup>	-	-	-	•	IMD4	FDD
	n78	15	-	REFSENS	-	-	-	N/A	TDD
DC_5A_n77A8	5	N/A	-78.7	-	-	-	-	IMD4 <sup>9</sup>	FDD
DC_5A_n77C8	n77	15	-	REFSENS	-	-	-	N/A	TDD
DC_13A_n77A	13	N/A	-80.93	-	-	-	-	IMD5	FDD
DC_13A_n77C	n77	15	-	REFSENS	-	-	-	N/A	TDD
DC_66A_n77A	66	N/A	-64.47	-	-	-	-	IMD2	FDD

DC_66A-	n77	15	-	REFSENS	-	-	-	N/A	TDD
66A_n77A	66	N/A	-87.53	-	-	-	-	IMD5	FDD
DC_66A-66A- 66A_n77A									TDD
DC_66A_n77C DC_66A- 66A_n77C	n77	15	-	REFSENS	-	-	-	N/A	
DC_66A-66A- 66A_n77C									

- NOTE 1: Both of the transmitters shall be set min(+20 dBm, P<sub>CMAX\_L,c</sub>) as defined in clause 6.2.5A. In case Single UL is allowed and the UE only indicates support of "Single UL" the output power of the active UL shall be set at P<sub>CMAX\_L,c</sub> or set to the maximum output power according to the UE power scaling capability.
- NOTE 2: RBstart = 0
- NOTE 3: This band is subject to IMD5 also which MSD is not specified.
- NOTE 4: The symbol "REFSENS" in this table refers to the reference sensitivity values for single carrier specified in Table 7.3.5-1 of TS 36.521-1 [10] for 2 antenna port E-UTRA band, Table 7.3\_1.5-1 of TS 36.521-1 [10] for 4 antenna port E-UTRA band, Table 7.3.2.5-1 for 2 antenna port NR band and Table 7.3.2.5-2 for 4 antenna port NR band.
- NOTE 5: For UEs only indicating support of Single UL, this requirement is verified with non-simultaneous uplink transmissions on the E-UTRA and NR CGs.
- NOTE 6: TT is the same as defined in Table 7.3B.2.3.5-1a.
- NOTE 7: Applicable only if operation with 4 antenna ports is supported in the band with EN-DC configured.
- NOTE 8: For a UE which supports this band combination only when the Band n77 frequency range restriction defined in NOTE 12 of Table 5.2-1 from TS 38.101-1 applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.
- NOTE 9: This band is subject to IMD5 also which MSD is not specified.

# 7.3B.2.3\_1 Reference sensitivity for EN-DC within FR1 (>2 CCs)

### 7.3B.2.3\_1.1 Reference sensitivity for EN-DC within FR1 (3 CCs)

Editor's note: The test requirements section of this test case contains some EN-DC configurations that have no test points defined meaning these cannot be tested.

Editor's note: For EN-DC configurations with >1NR CC, test points in Table 7.3B.2.3\_1.1.4.1-0 only need to be tested if the configuration is a max NR CC of the UE, where detailed execution rules are FFS.

### 7.3B.2.3\_1.1.1 Test purpose

To verify the ability of UE that support EN-DC configurations to receive data with a given average throughput for a specified reference measurement channel, under conditions of low signal level, ideal propagation and no added noise when no CA exceptions are allowed and single carrier requirements apply whenever possible. A UE unable to meet the throughput requirement under these conditions will decrease the effective coverage area.

### 7.3B.2.3 1.1.2 Test applicability

This test applies to all types of NR UE release 15 and forward supporting 3CC EN-DC.

### 7.3B.2.3\_1.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.3B.2.0

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

7.3B.2.3\_1.1.4 Test description

7.3B.2.3\_1.1.4.1 Initial conditions

Same initial conditions as in clause 7.3B.2.3.4.1 with following exceptions:

The initial test configurations for E-UTRA band and NR band consist of environmental conditions, test frequencies, and channel bandwidths and RB allocations for exceptional test scenarios are specified in Table 7.3B.2.3\_1.1.4.1-0 and 7.3B.2.3\_1.1.4.1-1.

Table 7.3B.2.3\_1.1.4.1-0: Test Configuration Table for all EN-DC configurations for FR1 non-exception requirements

						Initial Co	nditions					
Tes	t Environr	ment as speci	fied in TS 38	.508-1 [6] claus	se 4.1		Normal, TL/VL,	TL/VH, TH/VI	_, TH/VH			
				38.508-1 [6] c in TS 36.508 [	lause4.3.1, 11] clause 4.3.	1	DC_XA_nYA-n Mid range for M					
							DC_XA_nYC: Mid range for X Low range, Hig		XC			
							DC_(n)XCA: Low range, Hig	h Range				
							DC_XA_nY(2A TBD	):				
E-U	TRA Test	t Channel Bar			08-1 [6] clause 4 36.508 [11] cla		Refer to "NR N	RB"and "E-UTF	RA N <sub>RB</sub> " co	lumns		
		alling value					NS_01 by defa			able 7.3.3-3, de	ependent or	PCC Band
Tes	t SCS for	the NR cell a	s specified in	TS 38.521-1 [	8] Table 5.3.5-		Lowest SCS pe		ndwidth			
					lest Par		DC Configurat	ions				
			– E-UTRA	_		1	EUTRA/NR			ı	-NR	
ID	Band	Range		<b>I</b> RB	Band	Range	N <sub>R</sub>	B T	Band	Range		N <sub>RB</sub>
שו	UL MOD	DL MOD	CH BW	DLalloc/U L alloc	UL MOD	DL MOD	UL/DL Ch BW	DLalloc/ ULalloc	UL MOD	DL MOD	UL/DL Ch BW	DLalloc/UL alloc
			Test Se	ttings for a DC	_(n)XCA Config	guration (Intr	a-band contiguo	us EN-DC wit	h LTE CA)-	- Note 2		
1	Х	default			X	default			nX	default		
	QPSK	QPSK	Highest	All RBs / REFSENS _LTE	N/A	QPSK	Highest	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	Highest	All RBs / REFSENS _NR
			Test Settin	gs for a DC_X	C_nXA Configu	ıration (Intra-	-band non-contig	guous EN-DC	with LTE C	A)- Note 3		
							No test required, LTE 1CC fallback is tested in 7.3B.2.2					
		Test Set	tings for a Do	C_XA-XA_nXA	/ DC_XA_(n)XA	AA Configura	ation (Intra-band	non-contiguo	us EN-DC	with LTE CA)-	Note 3	

							No test required, LTE 1CC fallback is tested in 7.3B.2.2					
			Test Se	ttings for a DC	_XA_nYC Conf	iguration (Int	ter-band EN-DC	with NR CA, 2	2 bands) –	Note 1,5	1	
1	X	default			nY	default			nY	default		
	N/A	N/A	5 MHz	0/0	N/A	CP- OFDM QPSK	Highest	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	Highest	All RBs / REFSENS _NR
			Test Sett	ngs for a DC_	XA_nY(2A) Cor	nfiguration (li	nter-band EN-D0	with NR CA	, 2 bands) -	- Note 1,5		
1	X	default			nY	default			nY	default		
	N/A	N/A	5 MHz	0/0	N/A	CP- OFDM QPSK	Highest	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	Highest	All RBs / REFSENS _NR
		Tes	st Settings for	a DC_XC_nY/	A, DC_XA-XA_	nYA Configu	ration (Inter-ban	d EN-DC with	LTE CA, 2	2 bands) – Note	3	
							No test required, LTE 1CC fallback is tested in 7.3B.2.3					
			Default Test	Settings for a D	DC_XA-YA_nZA	A Configurati	on (Inter-band E	N-DC with LT	E CA, 3 ba	inds) – Note 3	1	
							No test required, LTE 1CC fallback is tested in 7.3B.2.3					
		D	efault Test S	ettings for a DO	C_XA_nYA-nZA	Configurat	ion (Inter-band E	N-DC with NI	R CA, 3 ba	nds) – Note 1,5		
1	X	Mid			nY	default			nΖ	default		
	N/A	N/A	5 MHz	0/0	N/A	CP- OFDM QPSK	Highest	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	Highest	All RBs / REFSENS _NR
2	X	Mid			nY	default			nΖ	default		
	N/A	N/A	5 MHz	0/0	DFT-s- OFDM QPSK	CP- OFDM QPSK	Highest	All RBs / REFSEN S_NR	N/A	CP-OFDM QPSK	Highest	All RBs / 0

Note 1:	LTE anchor agnostic configuration
Note 2:	Not LTE anchor agnostic configuration due to exception requirement for intra-band contiguous CA in clause 7.4B, 7.5B, 7.6B.2, 7.6B.3, 7.6B.4, 7.7B,
	7.8B, 7.9B test cases
Note 3:	LTE anchor agnostic configuration with LTE CA where LTE CA fallback to 1CC is sufficient to test
Note 4:	In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected.
Note 5:	For UE supporting multiple EN-DC configurations with the same NR CA combination, only one EN-DC configuration is tested.
Note 6:	REFSENS_LTE refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.3-2 of TS 36.521-1 [10].
	REFSENS_NR refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.2.4.1-3 of TS 38.521-1 [8].

Table 7.3B.2.3\_1.1.4.1-1: Test Configuration Table for EN-DC configurations affected by Reference sensitivity exceptions

						Initial	Conditions						
Tes	t Environm	ent as specifie	ed in TS 38.50	08-1 [6] clause 4	.1		Normal, TI	_/VL, TL	_/VH, TH/VL, TH	I/VH			
E-U	JTRA Test	Frequencies as	s specified in	8.508-1 [6] claus TS 36.508 [11] (	clause 4.3.1				ions containing t nd 20 and Mid in		g band combinat	ions:	
NR E-U	Test Chan JTRA Test	nel Bandwidth: Channel Bandv	s as specified widths as spe	d in TS 38.508-1 ecified in TS 36.5	[6] clause 4.3 508 [11] claus	3.1 se 4.3.1.	Refer to "N	NR N <sub>RB</sub> "	and "E-UTRA N	I <sub>RB</sub> " column	S		
	work signa										7.3.3-3, depende	nt on PCC B	and
Tes	t SCS for t	he NR cell as s	specified in T	S 38.521-1 [8] T					Channel Bandwi	dth			
		500	E LIEDA		lest	Parameters		_	ons			ND	
	Dand		– E-UTRA	NI	Dand		- EUTRA/N			Dand		-NR	N
ID	Band	Range		<b>N</b> RB	Band	Range		NR	B	Band	Range		N <sub>RB</sub>
	UL MOD	DL MOD	CH BW	DLalloc/UL alloc	UL MOD	DL MOD	UL/DL C	h BW	DLalloc/ ULalloc	UL MOD	DL MOD	UL/DL Ch BW	DLalloc/UL alloc
		Defa	ult Test Setti	ings for a DC_X	A_nYC, DC_	XA_nY(2A) C	onfiguratio	n (Inter	-band EN-DC w	ith NR CA,	, 2 bands) – Not	e 7	
		Defau	It Test Settir	ngs for a DC_XC	C_nYA, DC_>	f	No test required, NR 1CC fallback is tested in 7.3B.2.3 Configuratio  No te required 1CC fallb tested 7.3B.2	st , LTE ack is I in	-band EN-DC w	vith LTE CA	A, 2 bands) – No	ote 4	
	1		Default Tes	t Settings for a	DC_XA-YA_	nZA Configu	ration (Inter	-band l	EN-DC with LTE	ECA, 3 ban	ds) – Note 4		,
							No te required 1CC fallb tested 7.38.2	, LTE ack is I in					
			Default Tes	t Settings for a	DC_XA_nYA	A-nZA Config	uration (Inte	er-band	EN-DC with NF	R CA, 3 bar	nds) – Note 7		
				1	est Settings	f	No test required, NR 1CC fallback is tested in 7.3B.2.3	nfigura	tion – Note 3				

1	1	UL 1975 / DL 2165 MHz			3	DL 1818.5 MHz			n28	UL 710.5 / DL 765.5 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
2	3	UL 1780 / DL 1875 MHz			1	DL 2139 MHz			n28	UL 710.5 / DL 765.5 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test Settings f	or DC_1A-7A_r	28A Configur	ation – Note 3				
1	1	UL 1935 / DL 2125 MHz			7	DL 2653 MHz			n28	UL 718 / DL 773 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	10 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test Settings for	or DC_1A-3A_n	78A Configu	ration – Note 3		•	•	
1	1	UL 1950 / DL 2140 MHz			3	DL 1807.5 MHz			n78	3757.5 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
2	1	DL 2125 MHz			3	UL 1775 / DL 1870 MHz			n78	3725 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
	'			1	Test Settings for	or DC_1A-5A_n	78A Configu	ration – Note 3			1	1
1	1	DL 2122 MHz			5	UL 829 / DL 874 MHz			n78	3780 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
2	1	UL 1975 / DL 2165 MHz			5	DL 885 MHz			n78	3405 MHz		

									DFT-s-			
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
					Test Settings for	or DC_1A-7A_n7	8A Configu	ration – Note 3	3	l	l	
1	1	UL 1977.5 / DL 2167.5 MHz			7	DL 2627.5 MHz			n78	3305 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
2	1	DL 2140 MHz			7	UL 2510 / DL 2630 MHz			n78	3580 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	10MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
					Test Settings for	or DC_1A-20A_n	8A Configu	ration – Note 3	3	1		1
1	1	UL 1925/ DL 2115 MHz			20	DL 805 MHz			n8	UL 910 / DL 955 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test Settings fo	or DC_1A-20A_n7	78A Configu	ıration – Note	3	l	l .	
1	1	DL 2120 MHz			20	UL 835 / DL 794 MHz			n78	3790 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
2	1	UL 1950 / DL 2140 MHz			20	DL 810 MHz			n78	3330 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
					Test Set	ttings for DC_1A	-28A_n3A -	- Note 3		1		•
1	1	DL 2139 MHz			28	UL 710.5 / DL 765.5 MHz			n3	UL 1780 / DL 1875 MHz		

	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
	I	l		1	Test Sett	ings for DC_1A_	n28A-n78A	- Note 3	L			l
1	1	UL 1950 / DL 2140 MHz			n78	3416 MHz			n28	UL 733 / DL 788 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	10 MHz	All RBs / 0	DFT-s-OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
2	1	UL 1950 / DL 2140 MHz			n28	DL 790 MHz			n78	3320 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	5 MHz	All RBs / 0	DFT-s-OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
					Test Set	tings for DC_1A-	28A_n78A	- Note 3				
1	28	UL 740 / DL 795 MHz			1	DL 2150 MHz			n78	3630 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
2	1	UL 1970 / DL 2160			28	DL 794 MHz			n78	3352 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
					Test Set	tings for DC_2A-	66A_n41A	- Note 3				
1	2	UL 1860 / DL 1940 MHz	5 MHz		66	UL 1715 / DL 2115 MHz			n41	2685 MHz		
ı	QPSK	QPSK	5 MHz	All RBs / 0	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test Se	ttings for DC_3/	\-7A_n5A –	Note 3				
1	3	UL 1780/ DL 1875 MHz			7	DL 2625 MHz			n5	UL 845 / DL 890 MHz		
	QPSK	QPSK	10 MHz	All RBs / All RBs	N/A	QPSK	10 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
	ı			<u> </u>	Test Se	ettings for DC_3/	A-7A_n8A –	Note 3	•	<u>'</u>		•
1	3	UL 1780/ DL 1875 MHz			7	DL 2670 MHz			n8	UL 890 / DL 935 MHz		

	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPS	SK	10 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test S	Settings for	DC_3A	-7A_n28A ·	- Note 3		1		1
1	3	UL 1712.5 / DL 1807.5 MHz			7	DL 2682 MHz				n28	UL 743 / DL 798 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	10 M	Hz	All RBs / 0	DFT- OFD QPS	M QPSK	5 MHz	All RBs / All RBs
2	7	UL 2543 / DL 2663 MHz			3	DL 1832.5 MHz				n28	UL 710.5 / DL 765.5 MHz		
	QPSK	QPSK	10 MHz	All RBs / All RBs	N/A	QPSK	5 M	Hz	All RBs / 0	DFT- OFD QPS	M CP-OFDINI	5 MHz	All RBs / All RBs
					Test Settings	for DC_3A	-7A_n7	8A Configu	ıration – Note 3	}			
1	3	DL 1820 MHz			7	UL 256 2685				n78	3310 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPS	SK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
2	3	DL 1820 MHz			7	UL 256 2685				n78	3475 MHz		
	N/A	QPSK	5 MHz	All RBs / 0	QPSK	QPS	SK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
				1	Test Settings	for DC_3A	-8A_n7	8A Configu	ıration – Note 3	<b>,</b>			
1	3	DL 1820 MHz			8	UL 910 955 N				n78	3640 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPS	SK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
					Test Settings			8A Configu	ration – Note 3				
1	3	DL 1860 MHz			20	UL 840 DL 7				n8	UL 900 / DL 945 MHz		
	N/A	QPSK	5 MHz	All RBs / All RBs	QPSK	QPS	SK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
				<u> </u>	Test Settings	for DC_3A-	20A_n2	28A Config	uration – Note	3			

1	3	DL 1828 MHz			20	UL 852 / DL 811 MHz			n28	UL 728 / DL 783 MHz			
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs	
					Test Settings for	r DC_3A-20A_n7	78A Configu	ıration – Note	3				
1	3	DL 1820 MHz			20	UL 845 / DL 804 MHz			n78	3510 MHz			
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs	
	Test Settings for DC_3A-28A_n78A Configuration – Note 3												
1	28	UL 740 / DL 760 MHz			3	UL 1775 / DL 1870 MHz			n78	3350 MHz			
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs	
				7	Test Settings for	DC_3A_n28A-n	78A Config	uration – Note	3				
1	3	UL 1750/ DL 1845 MHz			n78	3764 MHz			n28	UL 743 / DL 798 MHz			
'	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	10 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs	

				7	Test Settings fo	r DC_3A-40A_n1	A Configur	ation – Note 3,	6			
	3	UL 1735 / DL 1830 MHz			40	DL 2380 MHz			n1A	UL 1950 / DL 2140 MHz		
1	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test Settings fo	or DC_3A-41A_n7	7A Configu	ration - Note	3			
1	3	UL 1720 / DL 1815 MHz			41	2640 MHz			n77	3900 MHz		
ı	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
	3	DL 1840 MHz			41	2620 MHz			n77	3400 MHz		
2	QPSK	QPSK	5 MHz	All RBs / 0	N/A	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
					Test Settings for	or DC_5A-7A_n7	8A Configu	ration – Note 3	}			
1	5	UL 844 / DL 889 MHz			7	DL 2645 MHz			n78	3489 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
2	5	DL 879 MHz			7	UL 2550 / DL 2670 MHz			n78	3429 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
3	5	DL 875 MHz			7	UL 2525 / DL 2645 MHz			n78	3350 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
	1	<u> </u>			Test Settings f	or DC_7A-8A_n3	A Configui	ration - Note 3			<u> </u>	1
1	7	UL 2530 / DL 2650 MHz			8	DL 940 MHz			n3	UL 1735 / DL 1830 MHz		

	QPSK	QPSK	10 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
2	7	DL 2670 MHz			8	UL 890 / DL 935 MHz			n3	UL 1780 / DL 1875 MHz		
	N/A	QPSK	10 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
				1	Test Settings fo	or DC_7A-20A_n	1A Configu	ration – Note 3	3	l		
	7	UL 2510 / DL 2630 MHz			20	800 MHz			n1	UL 1940 / DL 2130 MHz		
1	N/A	QPSK	10 MHz	All RBs /	QPSK	QPSK	10 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
				1	Test Settings fo	or DC_7A-20A_n	3A Configu	ration – Note 3	3	1		1
1	7	UL 2543 / DL 2663 MHz			20	DL 806 MHz			n3	UL 1737 / DL 1832 MHz		
	QPSK	QPSK	10 MHz	All RBs / All RBs	N/A	QPSK	10 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
2	7	DL 2630 MHz			20	UL 855 / DL 896 MHz			n3	UL 1775 / DL 1870 MHz		
	N/A	QPSK	10 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
					Test Settings fo	or DC_7A-20A_n	8A Configu	ration – Note 3	3			
1	7	UL 2565 / DL 2685 MHz			20	DL 795 MHz			n8	UL 885 / DL 930 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
2	7	DL 2640 MHz			20	UL 840 / DL 799 MHz			n8	UL 900 / DL 945 MHz		

	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MH	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
3	7	DL 2624 MHz			20	UL 857 / D 816 MHz			n8	UL 910 / DL 955 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MH	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test Settings	or DC_7A-20A	_n28A Con	figuration - Note	3			
	20	UL 842/ DL 801 MHz			7	DL 2640 MHz			n28	UL 728 / DL 783 MHz		
1	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	10 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs

					Test Settings	s for DC_7A-20 <i>A</i>	A_n78A Coi	nfiguration – Note 3						
1	7	UL 2560 / DL 2680 MHz			20	DL 810 MHz			n78	3370 MHz				
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs		
2	7	UL 2560 / DL 2680 MHz			20	DL 810 MHz			n78	3435 MHz				
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs		
3	7	DL 2675 MHz			20	UL 845 / DL 804 MHz			n78	3520 MHz				
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs		
	Test Settings for DC_7A-28A_n3A Configuration – Note 3													
1	7	UL 2543 / DL 2663 MHz			28	DL 796 MHz			n3	1842 MHz				
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs		
2	7	DL 2685 MHz			28	UL 745 / DL 800 MHz			n3	1810 MHz				
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs		
					Test Setting	s for DC_7A-28	A_n5A Con	figuration – Note 3		·				
1	7	UL 2540 / DL 2660 MHz			28	DL 776 MHz			n5	UL 829 / DL 874 MHz				
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs		
2	7	DL 2630 MHz			28	UL 730 / DL 785 MHz			n5	UL 840 / DL 874 MHz				

	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test Settings	for DC_7A-28/	A_n78A Co	nfiguration – Note 3				
1	7	UL 2567.5 / DL 2687.5 MHz			28	DL 782.5 MHz			n78	3350 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
2	7	UL 2567.5 / DL 2687.5 MHz			28	DL 782.5 MHz			n78	3460 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
3	7	DL 2650 MHz			28	UL 740 / DL 795 MHz			n78	3390 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs
				<u> </u>	Test Settings	for DC_7A_n28	A-n78A Co	nfiguration - Note 3	l		l .	
4	7	UL 2565/ DL 2685 MHz			n78	3310 MHz			n28	UL 745 / DL 800 MHz		
1	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	10 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
2	7	UL 2565/ DL 2685 MHz			n28	DL 800 MHz			n78	3365 MHz		
2	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs

					Test Settings	for DC_2A-14	A_n66A Co	nfiguration – Note 3				
1	2	DL 1954 MHz			14	UL 793 / DL 763 MHz			n66	UL 1770 / DL 2170 MHz		
	N/A	QPSK	5 MHz	All RBs /	QPSK	QPSK	5 MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
	1				Test Settings	for DC_14A-66	SA_n2A Co	nfiguration – Note 3				
1	14	DL 763 MHz			66	UL 1762 / DL 2162 MHz			n2	UL 1874 / DL 1954 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
					Test Settings	for DC_18A-41	A_n77A Co	onfiguration – Note 3				
	18	DL 865 MHz			41	2640 MHz			n77	3527.5 MHz		
1	QPSK	QPSK	5 MHz	All RBs /	QPSK	QPSK	5MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10MHz	All RBs / All RBs
	l l			<b>I</b>	Test Settings	for DC_18A-41	A_n78A Co	onfiguration - Note 3		1		
	18	DL 865 MHz			41	2640 MHz			n78	3527.5 MHz		
1	QPSK	QPSK	5 MHz	All RBs /	QPSK	QPSK	5MHz	All RBs / All RBs	DFT-s- OFDM QPSK	CP-OFDM QPSK	10MHz	All RBs / All RBs
	"			<b>.</b>	Test Settings f	or DC_20A_n2	8A-n78A C	onfiguration – Note 3				
1	20	UL 857 / DL 816 MHz			n78	3314 MHz			n28	UL 743 / DL 798 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	10MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
2	20	UL 837 / DL 796 MHz			n28	UL 744 / DL 799 MHz			n78	3310 MHz		
	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	5MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10MHz	All RBs / All RBs
	,					, <u> </u>	_n28A-n7	A Configuration				
	20	Mid		A !! B B . /	n28	High			n75	DL 1476MHz		
1	QPSK	QPSK	20MHz	All RBs /	DFT-s-OFDM QPSK	CP-OFDM QPSK	20MHz	All RBs / REFSENS_ENDC_1	N/A	CP-OFDM QPSK	20MHz	All RBs / N/A

2 <sup>Note</sup>	20	Mid			n28	Low			n75	High		
8	QPSK	QPSK	20MHz	All RBs / 0	DFT-s-OFDM QPSK	CP-OFDM QPSK	20MHz	All RBs / REFSENS_ENDC_1	N/A	CP-OFDM QPSK	20MHz	All RBs / N/A
					Test Settings	for DC_28A_n7	'A-n78A Co	onfiguration - Note 3				
1	28	UL 745 / DL 8005 MHz			n78	3310 MHz			n7	UL 2565 / DL 2685 MHz		
,	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	10 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	5 MHz	All RBs / All RBs
2	28	UL 745 / DL 8005 MHz			n7	DL 2650 MHz			n78	3390 MHz		
2	QPSK	QPSK	5 MHz	All RBs / All RBs	N/A	CP-OFDM QPSK	5 MHz	All RBs / 0	DFT-s- OFDM QPSK	CP-OFDM QPSK	10 MHz	All RBs / All RBs

Note 1: Void

Note 2: Void

EN-DC configuration affected by 2UL intermodulation exception. The exceptions always apply for a certain UL configuration. Note 3:

LTE CA fallback to 1CC is sufficient to test, unless both LTE cells are part of the exception requirement in which case the configuration need to be tested (using Note 4: configuration specific test settings and not default).

In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected. Note 5:

Test only applicable for to UEs not supporting UE capability singleUL-Transmissionn for the correspondent uplink configuration. Note 6:

NR CA fallback to 1CC is sufficient to test, unless both NR cells are part of the exception requirement in which case the configuration need to be tested (using Note 7: configuration specific test settings and not default).

Test ID with UL harmonic exception avoided. Note 8:

Note 9: REFSENS\_LTE refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.3-2 of TS 36.521-1 [10].

REFSENS NR refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.2.4.1-3 of TS 38.521-1 [8].

REFSENS\_ENDC\_1 refers to the Uplink RB allocation for reference sensitivity exceptions due to UL harmonic interference according to table 7.3B.2.0.3.1-2.

REFSENS ENDC 2 refers to the Uplink RB allocation for reference sensitivity exceptions due to receiver harmonic mixing according to table 7.3B.2.0.3.2-2.

REFSENS\_ENDC\_3 refers to the Uplink RB allocation for reference sensitivity exceptions due to cross band isolation according to table 7.3B.2.0.3.4-2.

REFSENS\_ENDC\_4 refers to the Uplink RB allocation for reference sensitivity exceptions due to dual uplink operation for ENDC according to table 7.3B.2.0.3.5.1-1

for PC3 and table 7.3B.2.0.3.5.1-1a for PC2.

NOTE 10: If the NR frequency does not match to a valid NR-ARFCN, apply the closest NR frequency with a valid NR-ARFCN.

### 7.3B.2.3 1.1.4.2 Test procedure

Same as in clause 7.3B.2.3.4.2.

### 7.3B.2.3\_1.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED for NR band.

Message contents exceptions for E-UTRA band are according to TS 36.521-1 [10] clause 7.3.4.3 for each network signalling value. Message contents exceptions for NR band are according to TS 38.521-1 [8] clause 7.3.2.4.3 for each network signalling value.

For test points with Note 3 in Table 7.3B.2.3\_1.1.4.1-1, the following message exception applies:

Table 7.3B.2.3.4.2.3-1: RRCConnectionReconfiguration: nr-Config-r15

Derivation Path: TS 36.508 [11], Table	Derivation Path: TS 36.508 [11], Table 4.6.1-8										
Information Element Value/remark Comment Condition											
p-MaxEUTRA-r15	23		Power Class 2 UE								
p-MaxEUTRA-ITS	20		Power Class 3 UE								

### Table 7.3B.2.3.4.2.3-2: PhysicalCellGroupConfig

Derivation Path: TS 38.508-1 [6] Table 4.6.3-106									
Information Element	Value/remark	Comment	Condition						
p-NR-FR1	23		Power Class 2 UE						
p-INK-FK1	20		Power Class 3 UE						

### 7.3B.2.3\_1.1.5 Test requirement

Reference sensitivity test requirements for EN-DC configurations affected by 3 band 2UL intermodulation interference, are specified in Table 7.3B.2.3\_1.1.5-1 and Table 7.3B.2.3\_1.1.5-2 with uplink configuration specified in Table 7.3B.2.3\_1.1.4.1-1.

Reference sensitivity test requirements for test points in Table 7.3B.2.3\_1.1.4.1-1, are specified in Table 7.3.2.5-1 in TS 38.521-1 [8] for the NR CC.

Table 7.3B.2.3\_1.1.5-1: Reference sensitivity exceptions for Scell due to dual uplink operation for ENDC in NR FR1 (three bands)

EN-DC Configuration	Test ID	EUTRA/ NR band	SCS (kHz)	5 MHz (dBm)	10 MHz (dBm)	20 MHz (dBm)	40 MHz (dBm)	Duplex mode	IMD order	Single UL allowed
DC_1A-3A_n28A	1	1	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-		N/A	
		3	N/A	-92.3	-	-	-		IMD5	
	2	3	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-		N/A	
		1	N/A	-88.3	-	-	-		IMD4	
DC_1A-7A_n28A	1	1	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-		N/A	
		7	N/A	-	-64.3	-	-		IMD2	
	1	1	N/A	REFSENS	-	-	-		N/A	
		3	N/A	-64.8	-	-	-	FDD	IMD2	
		n77	15	-	REFSENS	-	-	TDD	N/A	
	2	1	N/A	REFSENS	-	-	-		N/A	
DC_1A-3A_n77A		3	N/A	-87.8	-	-	-	FDD	IMD4	
		n77	15	-	REFSENS	-	-	TDD	N/A	
	3	1	N/A	-68.3	-	-	-		IMD2	
		3	N/A	REFSENS	-	-	-	FDD	N/A	
		n77	15	-	REFSENS	-	-	TDD	N/A	
	1	1	N/A	-91.0	-	-	-	FDD	IMD4	
		3	N/A	REFSENS	_	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	2	1	N/A	REFSENS	-	_	-		N/A	
DC_1A-3A_n78A		3	N/A	-65.1	_	-	-	FDD	IMD2	
DC_1A-3C_n78A		n78	15	-	REFSENS	_	-	TDD	N/A	
	3	1	N/A	-96.5	-	_	-		IMD5	
		3	N/A	REFSENS	_	_	_	FDD	N/A	
		n78	15	-	REFSENS	_	_	TDD	N/A	
	1	1	N/A	-91.0	-	_	_	FDD	IMD4	
		5	N/A	REFSENS	_	_	_	FDD	N/A	
		n78	15	-	REFSENS	_	_	TDD	N/A	
	2	1	N/A	REFSENS	-	_	_	FDD	N/A	
	_	5	N/A	-89.0	_	_	_	FDD	IMD4	
		n78	15	-	REFSENS	_	_	TDD	N/A	
DC_1A-5A_n78A	3	1	N/A	-81.2	-	-	_	FDD	IMD3	
		5	N/A	REFSENS	_	_	_	FDD	N/A	
		n78	15	-	REFSENS	_	_	TDD	N/A	
	4	1	N/A	REFSENS	-	_	_	FDD	N/A	
		5	N/A	-94.2	_	_	_	FDD	IMD5	
		n78	15		REFSENS	_	_	TDD	N/A	
	1	1	N/A	REFSENS	-	_	_	FDD	N/A	
		7	N/A	-88.2	_	_	_	FDD	IMD4	
		n78	15	-00.2	REFSENS	_	_	TDD	N/A	
DC_1A-7A_n78A	2	1	N/A	-90.6	-	_	-	FDD	IMD4	
	_	7	N/A	-	REFSENS	_		FDD	N/A	
		n78	15	-	REFSENS	-	_	TDD	N/A	<del>                                     </del>
		1	N/A	REFSENS	-	-	-	FDD	N/A	
DC_1A-20A_n8A	1	20	N/A	-87.8	_	-	-	FDD	IMD4	<del>                                     </del>
DO_1A-20A_110A	'	n8	15	REFSENS	-	-	-	FDD	N/A	<del>                                     </del>
		1	N/A	-79.0	-	-	-	FDD	IMD3	
DC_1A-20A_n78A	1	20	N/A N/A	REFSENS	-	-	-	FDD	N/A	-
DO_1A-20A_11/0A	'	n78	15	-	REFSENS	-	-	TDD	N/A	-
		1	N/A	REFSENS	REFSENS		-		N/A N/A	
DC 14 204 = 704	_				-	-		FDD		
DC_1A-20A_n78A	2	20	N/A	-93.3	DEFORMO	-	-	FDD	IMD5	-
		n78	15 N/A	DECCENO	REFSENS	-	-	TDD	N/A	
DC_1A-28A_n3A	1	28	N/A	REFSENS		-	-	FDD	N/A	-
_		n3	15	REFSENS		-	-	FDD	N/A	

EN-DC Configuration	Test ID	EUTRA/ NR band	SCS (kHz)	5 MHz (dBm)	10 MHz (dBm)	20 MHz (dBm)	40 MHz (dBm)	Duplex mode	IMD order	Single UL allowed
		1	N/A	-88.3		-	-	FDD	IMD4	
DC_1A_n28A-n78A	1	1	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-	FDD	N/A	
		n78	15	-	-79.1	-	-	TDD	IMD3	
	2	1	N/A	REFSENS	-	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
		n28	15	-94.5	-	-	-	FDD	IMD5	
	1	1	N/A	-83.6	-	-	-	FDD	IMD3	
		28	N/A	REFSENS	-	-	-	FDD	N/A	
DC 14 204 p704		n78	15	-	REFSENS	-	-	TDD	N/A	
DC_1A-28A_n78A	2	1	N/A	REFSENS	-	-	-	FDD	N/A	
		28	N/A	-93.6	-	-		FDD	IMD5	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	1	2	N/A	-90.1	-	-	-	FDD	IMD4	
DC_2A-14A_n66A		14	N/A	REFSENS	-	-	-	FDD	N/A	
		n66	15	REFSENS	-	-	-	FDD	N/A	
		2	N/A	-74.4	-	-	-	FDD	IMD4	
DC_2A-66A_n41A	1	66	N/A	REFSENS	_	-	-	FDD	N/A	
	-	n41	15	REFSENS	_	-	-	TDD	N/A	
	1	3	N/A	REFSENS	_	_	-	FDD	N/A	
		5	N/A	-89.0	_	_	-	FDD	IMD4	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	2	3	N/A	-70.3	-	_	-	FDD	IMD2	
DC_3A-5A_n78A	_	5	N/A	REFSENS	_	_	-	FDD	N/A	
DC_SA-SA_II/OA				1					N/A	
	2	n78	15	-	REFSENS	-	-	TDD	N/A	
	3	n78	15		REFSENS	-	-	TDD		
		3	N/A	-88.3	-	-	- 40.75	FDD	IMD4	
	- 4	2	N1/A	[TBD]	DEFORMO		10.7 <sup>5</sup>		) N/A	
DO 04 74 = 54	1	3	N/A	-	REFSENS	-	-	FDD	D IMD2 <sup>XX</sup>	
DC_3A-7A_n5A		7	N/A	-	- 64.3	-	-	FDD		
DO 04 74 004		n5	15	REFSENS	-	-	-	FDD	N/A	
DC_3A-7A_n28A	1	3	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-		N/A	
		7	N/A	-	-77.4	-	-		IMD3	
	2	7	N/A	-	REFSENS	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-		N/A	
		3	N/A	-70.3	-	-	-		IMD2	
	1	3	N/A	-78.7	-	-	-	FDD	IMD3	
DC_3A-7A_n78A		7	N/A	REFSENS	-	-	-	FDD	N/A	
DC_3C-7A_n78A		n78	15	-	REFSENS	-	-	TDD	N/A	
DC_3C-7C_n78A	2	3	N/A	-87.7	-	-	-	FDD	IMD4	
		7	N/A	REFSENS	-	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	1	3	N/A	-79.8	-	-	-	FDD	IMD3	
DC_3A-8A_n78A		8	N/A	REFSENS	-	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
DC_3A-20A_n28A	1	20	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-	FDD	N/A	
		3	N/A	-86.9	-	-	-	FDD	IMD4	
	1	3	N/A	-79.0	-	-	-	FDD	IMD3	
DC_3A-20A_n78A		20	N/A	REFSENS	-	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
		3	N/A	REFSENS	-	-	-	FDD	N/A	
		4								
DC_3A_n28A-n78A	1	n28	15	REFSENS	-	-	-	FDD	N/A	

EN-DC	Test	EUTRA/	SCS	5 MHz	10 MHz	20 MHz	40 MHz	Duplex	IMD	Single
Configuration	ID	NR band	(kHz)	(dBm)	(dBm)	(dBm)	(dBm)	mode	order	UL allowed
		3	N/A	-79	-	-	-	FDD	IMD3	anowca
DC_3A-28A_n78A	1	28	N/A	REFSENS	-	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
		n1	15	REFSENS	-	-	-	FDD	N/A	
DC_3A-40A_n1A	1	3	N/A	REFSENS	-	-	-	FDD	N/A	
		40	N/A	-91.3	-	-	-	TDD	IMD5	
		3	N/A	REFSENS	-	-	-	FDD	N/A	
DC_3A-41A_n77A	1	n77	15	-	REFSENS	-	-	TDD	N/A	
DC_3A-41C_n77A		41	N/A	-92	-	-	-	TDD	IMD5	
DC_3A-		41	N/A	REFSENS	-	-	-	TDD	N/A	
41A_n77(2A)	2	n77	15	-	REFSENS	-	-	TDD	N/A	
		3	N/A	-79.9	-	-	-	FDD	IMD3	
	1	5	N/A	-89.0	_	-	-	FDD	IMD4	
		7	N/A	REFSENS	_	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	2	5	N/A	REFSENS	-	-	-	FDD	N/A	
		7	N/A	-67.2	_	-	-	FDD	N/A	
		n78	15	-	REFSENS	_	_	TDD	N/A	
DC_5A-7A_n78A	3	5	N/A	-67.1	-	-	-	FDD	IMD2	
		7	N/A	REFSENS	_	_	_	FDD	N/A	
		n78	15	-	REFSENS	_	_	TDD	N/A	
	4	5	N/A	-94.0	-	-	-	FDD	IMD5	
		7	N/A	REFSENS	_			FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
		7	N/A	_	REFSENS	-	-	FDD	N/A	
	1	8	N/A	-78.3	KEFSENS	-	-	FDD	IMD3	
	'	n3	15	REFSENS	-	-	-	FDD	N/A	
DC_7A-8A_n3A		7		KEFSENS	-	-	-		IMD2+	
20_//\ o/\_\\o/\	2	'	N/A	-	-65.3	-	-	FDD	IMD3 <sup>YY</sup>	
		8	N/A	REFSENS	-	-	-	FDD	N/A	
		n3	15	REFSENS	-	-	-	FDD	N/A	
		7			REFSENS			FDD	N/A	
DC_7A-20A_n1A	1	20		-88.8				FDD	IMD5	
		n1		REFSENS				FDD	N/A	
		7	N/A	-	REFSENS	-	-	FDD	N/A	
	1	20	N/A	-	-82.8	-	-	FDD	IMD2	
DC_7A-20A_n3A		n3	15	REFSENS	-	-	-	FDD	N/A	
DO_7712071_11071	_	7	N/A	-	-68.3	-	-	FDD	IMD2	
	2	20	N/A	REFSENS	-	-	-	FDD	N/A	
		n3	15	- DEECENIC	REFSENS	-	-	FDD	N/A	
	1	7 20	N/A N/A	REFSENS -78.9	-	-	-	FDD FDD	N/A IMD3	
	'	n8	15	REFSENS	-	-	-	FDD	N/A	
		7	N/A	-76.2	-	-	-	FDD	IMD3	1
DC_7A-20A_n8A	2	20	N/A	REFSENS	-	-	-	FDD	N/A	
		n8	15	REFSENS	-	-	-	FDD	N/A	
		7	N/A	-78.5	-	-	-	FDD	IMD3	
	3	20	N/A	REFSENS	-	-	-	FDD	N/A	
		n8	15	REFSENS	-	-	-	FDD	N/A	
	1	7	N/A	-	-91.4	-	-	FDD	IMD5	
DC_7A-20A_n28A		20	N/A	REFSENS	-	-	-	FDD	N/A	ļ
		n28	15	REFSENS	-	-	-	FDD	N/A	

EN-DC Configuration	Test ID	EUTRA/ NR band	SCS (kHz)	5 MHz (dBm)	10 MHz (dBm)	20 MHz (dBm)	40 MHz (dBm)	Duplex mode	IMD order	Single UL allowed
		7	N/A	REFSENS	-	-	-	FDD	N/A	
	1	20	N/A	-65.8	-	-	-	FDD	IMD2	
		n78	15	_	REFSENS	-	-	TDD	N/A	
		7	N/A	REFSENS	-	-	-	FDD	N/A	
DC_7A-20A_n78A	2	20	N/A	-93.3	-	-	-	FDD	IMD5	
	_	n78	15	-	REFSENS	-	-	TDD	N/A	
		7	N/A	-66.5	-	-	-	FDD	IMD2	
	3	20	N/A	REFSENS	_	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
		7	N/A	REFSENS				FDD	N/A	
	1	28	N/A	-77.8				FDD	IMD2	
DO 74 004 04		n3	15	REFSENS				FDD	N/A	
DC_7A-28A_n3A		7	N/A	-79.3				FDD	IMD3	
	2	28	N/A	REFSENS				FDD	N/A	
		n3	15	REFSENS				FDD	N/A	
	1	7	N/A	REFSENS	-	-	-	FDD	N/A	
		28	N/A	-93.4	-	-	-	FDD	IMD5	
DO 74 004 54		n5	15	REFSENS	-	-	-	FDD	N/A	
DC_7A-28A_n5A	2	7	N/A	-91.9	-	-	-	FDD	IMD5	
		28	N/A	REFSENS	-	-	-	FDD	N/A	
		n5	15	REFSENS	-	-	-	FDD	N/A	
	1	7	N/A	REFSENS	-	-	-	FDD	N/A	
		28	N/A	-89.5	_	-	-		IMD2	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	2	7	N/A	REFSENS	-	-	-	FDD	N/A	
DC_7A-28A_n78A		28	N/A	-94.8	-	-	-		IMD5	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	3	7	N/A	-66.8	-	-	-	FDD	IMD2	
		28	N/A	REFSENS	-	-	-		N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	1	7	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-	FDD	N/A	
DO 74 004 704		n78	15	-	-65.1	-	-	TDD	IMD2	
DC_7A_n28A-n78A	2	7	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	-69.0	-	-	-	FDD	IMD2	
		n78	15	-	REFSENS	-	-	TDD	N/A	
DO 404 444 774		18	N/A	-95.9	-	-	-	FDD	IMD5	
DC_18A-41A_n77A DC_18A-41C_n77A	1	n77	15	-	REFSENS	-	-	TDD	N/A	
DC_18A-41C_n77A		41	N/A	REFSENS	-	-	-	TDD	N/A	
DO 404 444 704		18	N/A	-95.9	-	-	-	FDD	IMD5	
DC_18A-41A_n78A		n78	15	-	REFSENS	-	-	TDD	N/A	
DC_18A-41C_n78A		41	N/A	REFSENS	-	-	-	TDD	N/A	
DC_20A_n28A- n78A	1	20	N/A	REFSENS	-	-	-	FDD	N/A	
		n28	15	REFSENS	-	-	-	FDD	N/A	
		n78	15	-	-86.1	-	-	TDD	IMD4	
	2	20	N/A	REFSENS	-	-	-	FDD	N/A	
		n78	15	-	REFSENS	-	-	TDD	N/A	
		n28	15	-89.1+TT	-	-	-	FDD	IMD4	

EN-DC Configuration	Test ID	EUTRA/ NR band	SCS (kHz)	5 MHz (dBm)	10 MHz (dBm)	20 MHz (dBm)	40 MHz (dBm)	Duplex mode	IMD order	Single UL allowed
		28	N/A	REFSENS	-		-	FDD	N/A	
	1	n7	15	REFSENS	-		-	FDD	N/A	
DC_28A_n7A-n78A		n78	15	-	-65.1	1	-	TDD	IMD2	
DC_20A_117A-1170A		28	N/A	REFSENS	-	1	-	FDD	N/A	
	2	n7	15	-66.8	-	-	-	FDD	IMD2	
		n78	15	-	REFSENS	-	-	TDD	N/A	
	1	14	N/A	REFSENS	-	-	-	FDD	N/A	
DC_14A-66A_n2A		66	N/A	-91.2	-	-	-	FDD	IMD4	
		n2	15	REFSENS	-	-	-	FDD	N/A	

NOTE 1: E-UTRA carrier shall be set to min(+20 dBm, P<sub>CMAX\_L\_E-UTRA,c</sub>) and NR carrier shall be set to min(+20 dBm, P<sub>CMAX\_L,c,NR</sub>) as defined in clause 6.2B.4.1.3.

NOTE 2: RB<sub>START</sub> = 0

NOTE 3: Void

NOTE 4: This band is subject to IMD5 also which MSD is not specified.

NOTE 5: The symbol "REFSENS" in this table refers to the reference sensitivity values for single carrier specified in Table 7.3.5-1 of TS 36.521-1 [10] for 2 antenna port E-UTRA band, Table 7.3\_1.5-1 of TS 36.521-1 [10] for 4 antenna port E-UTRA band, Table 7.3.2.5-1 for 2 antenna port NR band and Table 7.3.2.5-2 for 4 antenna port NR band.

NOTE 6: No requirements apply when there is at least one individual RE within the intermodulation generated by the dual uplink is within the downlink transmission bandwidth of the Band 46. The reference sensitivity should only be verified when this is not the case (the requirements for Band 46 specified in the CA\_7A-46A in clause 7.3.1 of TS 36.101 [5] apply).

NOTE 7: This band is subject to IMD3 also which MSD is not specified.

NOTE 8: This MSD requirement apply with both IMD2 and IMD3 products should be generated.

Table 7.3B.2.3\_1.1.5-2: Reference sensitivity exceptions for Scell due to dual uplink operation for ENDC in NR FR1 (two bands)

EN-DC Configuration	EUTRA/ NR band	SCS (kHz)	5 MHz (dBm)	10 MHz (dBm)	20 MHz (dBm)	40 MHz (dBm)	Duplex mode	IMD order	Single UL allowed
DC_1A_n78C	1	N/A	- 92.0+T T	-	-	-	FDD	IMD4	
	n78	15	-	REFSE NS	-	•	TDD	N/A	
	n78	15	-	REFSE NS	-	-	טטו	N/A	

NOTE 1: Both of the transmitters shall be set min (+20 dBm, P<sub>CMAX\_L,c</sub>) as defined in clause 6.2.5A. In case Single UL is allowed and the UE only indicates support of "Single UL" the output power of the active UL shall be set at P<sub>CMAX\_L,c</sub> or set to the maximum output power according to the UE power scaling capability.

NOTE 2: RB<sub>START</sub> = 0

Test tolerance is the same as given in Table 7.3B.2.3.5-2.

## 7.3B.2.3\_1.2 Reference sensitivity for EN-DC within FR1 (4 CCs)

7.3B.2.3\_1.2.1 Test purpose

Same as in clause 7.3B.2.3.1.

#### 7.3B.2.3\_1.2.2 Test applicability

This test applies to all types of NR UE release 15 and forward supporting 4 CCs EN-DC.

### 7.3B.2.3\_1.2.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.3B.2.0.

For EN-DC combinations with no exception requirements applicable to NR or E-UTRA, LTE anchor agnostic approach is applied.

For EN-DC combinations with exceptional requirements, LTE anchor agnostic approach is not applied.

7.3B.2.3 1.2.4 Test description

7.3B.2.3\_1.2.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations for E-UTRA consist of the test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1, with the exception that the E-UTRA channel bandwidth is the lowest supported value in Table 5.3B.1.3-1 for the EN-DC non-contiguous configuration under test.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and subcarrier spacing based on NR operating bands specified in Table 5.5B.2-1. The 4CC EN-DC configurations listed in table 7.3B.2.3\_1.2.4.1-0 shall not be tested according to TR 38.905 [7] test point analysis. The other 4CC configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in Tables 7.3B.2.3.4.2.1-0 to 7.3B.2.3.4.2.1-1 for NR band. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 38.521-1 [8] Annex C2.

Table 7.3B.2.3\_1.2.4.1-0: 4CC EN-DC configurations that shall not be tested

EN-DC type	E-UTRA CA	NR CA	Notation
Intra-band non-contiguous EN- DC (1 band)	Yes (cont)	No	DC_XD_nXA
	Yes (non-cont)	No	Note 4
Inter-band EN-DC	Yes (all types)	No	DC_XD_nYA, DC_XA-YC_nZA, DC_XA-XA-YA_nZA, DC_XA-YA-ZA_nRA
	Yes (all types)	Yes (cont)	DC_XC_nYC, DC_XA-XA_nYC, DC_XA-YA_nYC
		Yes (non-cont)	DC_XC_nY(2A), DC_XA-YA_nY(2A)
		Yes (inter)	DC_XC_nYA-nZA, DC_XA-XA_nYA-nZA, DC_XA-YA_nZA-nRA
Inter-band + Intra-band contiguous EN-DC (2-3 band)	Yes	No	DC_XA-YA_(n)ZAA, DC_XC_(n)YAA
	Yes	Yes	DC_(n)XCA-nYA
Intra-band non contiguous EN- DC (2-3 band)	Yes	No	DC_XA-YA-ZA_nZA
	Yes	Yes	DC_XA-YA_nYA-nZA

NOTE 1: X, Y and Z in this table correspond to different bands i.e. X != Y != Z.

NOTE 2: The table apply to all band numbers, i.e. all values of X, Y and Z defined in TS38.101-3

NOTE 3: The band combinations with difference appearance order of bands/sub-blocks in the band combination string are not distinguished. E.g. DC\_YA-(n)XAA represents the set of DC\_YA-(n)XAA and DC\_(n)XAA-YA.

NOTE 4: No such config in TS 38.101-3 [7] V16.5.0x

Table 7.3B.2.3\_1.2.4.1-1: Test Configuration Table for all EN-DC configurations for FR1 non-exception requirements

				Initi	al Cond	itions							
Test Envir	onment as s	pecified in	ΓS <u>38</u> .50				<u>I, T</u> L/VL,	_/VL, TL/VH, TH/VL, TH/VH					
						DC_(n)XDA:							
	uencies as s 3.1 for differe					Low range, High Range  DC_XA_nYA-nZC:  Mid range for X and nY  Low range, High Range for nY							
					DC_XA	\_nY(2A	· ·						
	C bandwidth across ban							RA N <sub>RB</sub> " columns					
	CS as speci	fied in Table	e 5.3.5-1	in TS 38.52	21-1 [8]	Lowest	t SCS pe	er Channel Bai	ndwidth				
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]  Network signalling value							by defa given b JTRA ba the NR b	ult y Table 7.3.3-3 and and Table and.	3 in TS 36.521-1 [1 7.3.2.3-4 in TS 38.				
	00		Test F	Parameters			figuration	ons	T	DI.			
ID	CC (NOTE1)	Band	SCS	N <sub>RB</sub>	Range Wgap		MOD	DL MOD	UL Alloc	DL Alloc			
	, ,	Default	Test Se				nfigura	tion – Note 5					
	PCC(M)	Х		Highest N <sub>RB</sub>	default	i Q	PSK	QPSK	REFSENS_LTE	All RBs			
1 (Note	SCC1(M)	X		Highest N <sub>RB</sub>	Defaul	t l	N/A	QPSK	N/A	All RBs			
(6)	SCC2(M)	X		Highest N <sub>RB</sub>	Defaul		N/A	QPSK	N/A	All RBs			
	PCC(S)	nX		Highest N <sub>RB</sub>	defaul	1 0	FT-s- FDM !PSK	CP-OFDM QPSK	REFSENS_NR	All RBs			
	PCC(M)	Χ		Highest N <sub>RB</sub>	default	t <b>1</b>	N/A	QPSK	0	All RBs			
2 (Note	SCC1(M)	Χ		Highest N <sub>RB</sub>	Defaul	t l	N/A	QPSK	N/A	All RBs			
7)	SCC2(M)	Х		Highest N <sub>RB</sub>	Defaul		N/A	QPSK	N/A	All RBs			
	PCC(S)	nX		Highest N <sub>RB</sub>	defaul	. 0	FT-s- FDM :PSK	CP-OFDM QPSK	REFSENS_NR	All RBs			
	I	Default Tes	t Setting	s for a DC	XA_nY	(2A)-nZ	A Confi	guration - No	te 4				
	PCC(M)	X		5 MHz	default	: <b>!</b>	N/A	QPSK	0	All RBs			
	SCC1(S)	nY		Highest N <sub>RB</sub>	default	1 1	N/A	QPSK	N/A	All RBs			
1	SCC2(S)	nZ		Highest N <sub>RB</sub>	default		N/A	QPSK	N/A	All RBs			
	PCC(S)	nY		Highest N <sub>RB</sub>	defaul	0	FT-s- FDM PSK	CP-OFDM QPSK	REFSENS_NR	All RBs			
	PCC(M)	Х		5 MHz	default	t <b>1</b>	N/A	QPSK	0	All RBs			
-	SCC1(S)	nY		Highest N <sub>RB</sub>	default	t <b>1</b>	N/A	QPSK	N/A	All RBs			
2	SCC2(S)	nY		Highest N <sub>RB</sub>	default		N/A	QPSK	N/A	All RBs			
	PCC(S)	nΖ		Highest N <sub>RB</sub>	default	i O Q	FT-s- FDM !PSK	CP-OFDM QPSK	REFSENS_NR	All RBs			
		Default Te	est Setti	ngs for a D	C_XA_n			uration- Note	4				
	PCC(M)	Х		5 MHz	default	t <b>!</b>	N/A	QPSK	0	All RBs			
1	SCC1(S)	nZ		Highest N <sub>RB</sub>	default	1 1	N/A	QPSK	N/A	All RBs			
	SCC2(S)	nΖ		Highest N <sub>RB</sub>	default	t <b>1</b>	N/A	QPSK	N/A	All RBs			

	PCC(S)	nY	Highest N <sub>RB</sub>	default	DFT-s- OFDM QPSK	CP-OFDM QPSK	REFSENS_NR	All RBs
	PCC(M)	Χ	5 MHz	default	N/A	QPSK	0	All RBs
	SCC1(S)	nΖ	Highest N <sub>RB</sub>	default	N/A	QPSK	N/A	All RBs
2	SCC2(S)	nΥ	Highest N <sub>RB</sub>	default	N/A	QPSK	N/A	All RBs
	PCC(S)	nZ	Highest N <sub>RB</sub>	default	DFT-s- OFDM QPSK	CP-OFDM QPSK	REFSENS	All RBs

- NOTE 1: (M) and (S) indicate MCG and SCG respectively.
- NOTE 2: X, Y and Z in this table correspond to different bands i.e. X != Y != Z.
- NOTE 3: The band combinations with difference appearance order of bands/sub-blocks in the band combination string are not distinguished. E.g. DC\_YA-(n)XAA represents the set of DC\_YA-(n)XAA and DC\_(n)XAA-YA.
- NOTE 4: LTE anchor agnostic configuration
- NOTE 5: Not LTE anchor agnostic configuration due to exception requirement for intra-band contiguous CA in clause 7.4B, 7.5B, 7.6B.2, 7.6B.3, 7.6B.4, 7.7B, 7.8B, 7.9B test cases
- NOTE 6: Test point for UE supporting dual UL
- NOTE 7: Test point for UE supporting single UL
- NOTE 8: In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected.
- NOTE 9: UE supporting multiple EN-DC configurations with the same NR CA combination, only one EN-DC configuration is tested.
- NOTE 10: REFSENS\_LTE refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.3-2 of TS 36.521-1 [10].
  - REFSENS\_NR refers to the single carrier Uplink RB allocation for reference sensitivity according to table 7.3.2.4.1-3 of TS 38.521-1 [8].

For 4CC EN-DC configurations affected by exceptions, exception testing can be covered by 2CC or 3CC fallback configurations. No exception test points are needed in this test case.

# Table 7.3B.2.3 1.2.4.1-2: Void

# Table 7.3B.2.3 1.2.4.1-3: Void

- 1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [6] Annex A, Figure A.3.1.1.1 for TE diagram and clause A.3.2 for UE diagram.
- 2. The parameter settings for NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 4. NR downlink signals are initially set up according to Annex C.0, C.1, C.2, C.3.1, and uplink signals according to Annex G.0, G.1, G.2, and G.3.1 of TS 38.521-1 [8].
- 5. E-UTRA downlink signals are initially set up according to Annex C.0, C.1 and C.3.0, and uplink signals according to Annex H.1 and H.3.0 of TS 36.521-1 [10].
- 6. The DL and UL Reference Measurement channels are set according to Tables 7.3B.2.3.4.2.1-0 to 7.3B.2.3.4.2.1-6 for E-UTRA CG and NR CG.
- 7. NR propagation conditions are set according to Annex B.0 of TS 38.521-1 [8]. E-UTRA propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 8. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.3B.2.3 1.2.4.3.
- 9. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 7.3B.2.3\_1.2.4.2 Test procedure

- 1. NR SS transmits PDSCH via PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.3B.2.3\_1.2.4.2.1-1 on the NR CC. The NR SS sends downlink MAC padding bits on the DL RMC.
- 2. NR SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.3B.2.3\_1.2.4.2.1-1. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the appropriate REFSENS value defined in TS 38.521-1 [8], Table 7.3.2.5-1 for NR band. Send continuously uplink power control "up" commands in the uplink scheduling information to NR carrier to ensure the UE transmits PUMAX level for at least the duration of the Throughput measurement.
- 4. Measure the average throughput of the NR carrier for a duration sufficient to achieve statistical significance according to Annex H.2 of TS 38.521-1 [8] for NR band.

#### 7.3B.2.3\_1.2.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM PRECODER ENABLED for NR band.

Message contents exceptions for E-UTRA band are according to TS 36.521-1 [10] clause 7.3.4.3 for each network signalling value. Message contents exceptions for NR band are according to TS 38.521-1 [8] clause 7.3.2.4.3 for each network signalling value.

# 7.3B.2.3\_1.2.5 Test Requirement

Reference sensitivity test requirements for EN-DC configurations are specified in Table 7.3.5-1 in TS 36.521-1 [10] for the LTE CC, and Table 7.3.2.5-1 in TS 38.521-1 [8] for the NR CC.

# Table 7.3B.2.3\_1.2.5-1: Reference sensitivity exceptions for Scell due to dual uplink operation for ENDC in NR FR1 (two bands)

**FFS** 

# Table 7.3B.2.3\_1.2.5-2: Reference sensitivity exceptions for Scell due to dual uplink operation for ENDC in NR FR1 (three bands)

FFS

# 7.3B.2.3\_1.3 Reference sensitivity for EN-DC within FR1 (5 CCs)

#### 7.3B.2.3 1.3.1 Test purpose

Same as in clause 7.3B.2.3.1.

# 7.3B.2.3\_1.3.2 Test applicability

This test applies to all types of NR UE release 15 and forward supporting 5 CCs inter-band EN-DC.

#### 7.3B.2.3\_1.3.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.3B.2.0

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

## 7.3B.2.3\_1.3.4 Test description

## 7.3B.2.3\_1.3.4.1 Initial conditions

Same initial conditions as in clause 7.3B.2.3.4.1 with following exceptions:

The initial test configurations for E-UTRA band and NR band consist of environmental conditions, test frequencies, and channel bandwidths and RB allocations for exceptional test scenarios are specified in Table 7.3B.2.3\_1.3.4.1-1 and Table 7.3B.2.3\_1.3.4.1-2

Table 7.3B.2.3\_1.3.4.1-1: Test Configuration Table Reference sensitivity exceptions due to dual uplink operation for EN-DC in NR FR1 (four bands)

	Initial Conditions								
Test Envi	Test Environment as specified in TS 38.508-1 [6] clause 4.1					Normal, TL/VL, TL/VH, TH/VL, TH/VH			
Test Frequencies as specified in TS 38.508-1 [6]					For test frequencie	es refer to "Rang	je" columns. F	or	
	clause 4.3.1 for different EN-DC bandwidth classes					mapping within Ba			
Test EN-I	DC bandwidtl	n combinati	on as sp	ecified in Ta	ıble	11 0			
	1 across ban					Refer to "NRB" colu	ımn		
the UE				• • •					
NR Test S	SCS as speci	ified in Tabl	e 5.3.5-1	in TS 38.52	21-1 [8]	Refer to "SCS" col	umn		
	•					NS_01 by default,	exceptions liste	d in Table 7.3	.3-3.
Network s	signalling valı	ue				dependent on PC			,
			Test F	Parameters	for EN-I	OC Configurations			
	CC				Range	1			DL
ID	(NOTE1)	Band	scs	N <sub>RB</sub>	Wgap	() () (V(C))	DL MOD	UL Alloc	Alloc
	,	Default	Test Se	ttings for a		-YA_ZC_nRA Con	figuration	I	
	DOO(NA)			Highest				DEECENIC	All
	PCC(M)	Х	N/A	$\tilde{N}_RB$	Mid	QPSK	QPSK	REFSENS	RBs
	CCC4 (NA)	Υ	NI/A	Highest	N /1: al	NI/A	ODCK	NI/A	All
	SCC1(M)	Y	N/A	N <sub>RВ</sub>	Mid	N/A	QPSK	N/A	RBs
_	CCC2(NA)	7	NI/A	Highest	N /1: al	NI/A	ODCK	NI/A	All
1	SCC2(M)	Z	N/A	$N_{RB}$	Mid	N/A	QPSK	N/A	RBs
	CCC2(M)	Z	N/A	Highest	Mid	N/A	QPSK	NI/A	All
	SCC3(M)	2	IN/A	N <sub>RB</sub>	IVIIQ	IN/A	QPSK	N/A	RBs
	DCC(S)	R	15	Highest	Mid	DFT-s-OFDM	CP-OFDM	REFSENS	All
	PCC(S)	ĸ	kHz	$N_{RB}$	iviid	QPSK	QPSK	KEFSENS	RBs
NOTE 1:	(M) and (S)	indicate Mo	CG and S	SCG respec	tively.	•	•	•	
NOTE 2:	X Y and 7 in this table correspond to different hands i.e. X I- Y I- 7								

NOTE 2: X, Y and Z in this table correspond to different bands i.e. X != Y != Z

NOTE 3: The band combinations with difference appearance order of bands/sub-blocks in the band combination string are not distinguished. E.g. DC\_YA-(n)XAA represents the set of DC\_YA-(n)XAA and DC\_(n)XAA-YA

Table 7.3B.2.3\_1.3.4.1-2: Test Configuration Table Reference sensitivity exceptions due to dual uplink operation for EN-DC in NR FR1 (five bands)

Initial Conditions									
	Test Environment as specified in TS 38.508-1 [6] clause 4.1				se 4.1	Normal, TL/VL, TL/VH, TH/VL, TH/VH			
	uencies as s					For test frequencie			or
clause 4.3	3.1 for differe	nt EN-DC b	andwidth	n classes		mapping within Ba	nd refer to "CC"	columns	
	DC bandwidth								
	1 across ban	dwidth com	bination :	sets support	ted by	Refer to "N <sub>RB</sub> " col	umn		
the UE									
NR Test S	SCS as speci	fied in Tabl	e 5.3.5-1	in TS 38.52	21-1 [8]	Refer to "SCS" col			
Network s	signalling valu	IE.				NS_01 by default,		d in Table 7.3	.3-3,
Notwork	ngrialling val					dependent on PCC			
			Test F	Parameters		OC Configurations			
ID	CC (NOTE1)	Band	scs	N <sub>RB</sub>	Range Wgap		DL MOD	UL Alloc	DL Alloc
		Default 1	est Sett	ings for a [	C_XA-Y	A-ZA-SA_nRA Co	nfiguration		
	PCC(M)	Х	N/A	Highest N <sub>RB</sub>	Mid	QPSK	QPSK	REFSENS	All RBs
	SCC1(M)	Υ	N/A	Highest N <sub>RB</sub>	Mid	N/A	QPSK	N/A	All RBs
1	SCC2(M)	Z	N/A	Highest N <sub>RB</sub>	Mid	N/A	QPSK	N/A	All RBs
	SCC3(M)	S	N/A	Highest N <sub>RB</sub>	Mid	N/A	QPSK	N/A	All RBs
PCC(S)   R   15 kHz   Highest N <sub>RB</sub> Mid   DFT-s-OFDM QPSK   CP-OFDM QPSK   REFSENS   All RBs									
NOTE 1: (M) and (S) indicate MCG and SCG respectively.  NOTE 2: X, Y and Z in this table correspond to different E-UTRA bands i.e. X != Y != Z, R corresponds to NR band.  NOTE 3: For inter-band EN-DC 4CCs configuration with four bands, if there is no additional exceptional test point is									

defined besides the requirement for default uplink EN-DC configurations defined in Table 5.5B.4.3-1, testing

Same as in clause 7.3B.2.3.4.2.

7.3B.2.3\_1.3.4.2

## 7.3B.2.3\_1.3.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.

for 4CC with four band can be skipped.

Test procedure

# 7.3B.2.3\_1.3.5 Test requirement

For inter-band EN-DC configurations, the throughput of each CG shall be  $\geq 95\%$  of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 with reference receive power level specified in Tables Table 7.3.2.5-1 in TS 38.521-1 [8] and parameters specified Tables 7.3.2.4.1-1, Tables 7.3.2.4.1-2 and Tables 7.3.2.4.1-3 in TS 38.521-1 [8] for NR band.

Each EN-DC combination defined in Table 5.5B.4.3-1 shall be tested in anchor-agnostic mode as described in this clause. If a test point is overlapped with uplink EN-DC combo MSD test points, the requirement with MSD shall apply.

For the UE which supports inter-band EN-DC, the minimum requirement for reference sensitivity in Table 7.3.2.5-1 of TS 38.521-1 [8] for NR band and Table 7.3.5-1 of TS 36.521-1 [10] for EUTRA band, shall be increased by the amount given in  $\Delta R_{IB,c}$  defined in clause 7.3B.3.3 for the applicable for two, three, four and five bands operation.

Reference sensitivity exceptions for intermodulation interference due to dual uplink operation for EN-DC in NR FR1, are specified in Table 7.3B.2.3\_1.3.5-1 for four bands and Table 7.3B.2.3\_1.3.5-2 for five bands with uplink configuration specified in Table 7.3B.2.3\_1.3.4.1-1 for four bands and 7.3B.2.3\_1.3.4.1-2 for five bands, respectively.

For a given inter-band EN-DC 5CCs configuration defined in Table 5.5B.4.3-1 and Table 5.5B.4.4-1, if there is no additional exceptional test point is defined besides the requirement for default uplink EN-DC configurations defined in Table 5.5B.4.3-1 and Table 5.5B.4.4-1, the test requirement for default fallback uplink EN-DC configurations defined in Table 5.5B.4.3-1 applies.

# Table 7.3B.2.3\_1.3.5-1 Reference sensitivity exceptions for Scell due to dual uplink operation for ENDC in NR FR1 (four bands)

**TBD** 

Table 7.3B.2.3\_1.3.5-2 Reference sensitivity exceptions for Scell due to dual uplink operation for ENDC in NR FR1 (five bands)

**TBD** 

7.3B.2.3\_1.4 Reference sensitivity for EN-DC within FR1 (6 CCs)

**TBD** 

7.3B.2.4 Reference sensitivity for Inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances are FFS for power class 1 FR2b, 2 and 4.

7.3B.2.4.1 Test purpose

Same test purpose as in clause 7.3.2.1 in TS 38.521-2 [9] for the NR carrier.

7.3B.2.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR DL CC.

7.3B.2.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3B.2.0.4 TS 3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.3B.2.4.

7.3B.2.4.4 Test description

7.3B.2.4.4.1 Initial conditions

Same test description as in clause 7.3.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 7.3.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.3.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 7.3.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 7.3B.2.4.5 Test requirement

Same test requirement as in clause 7.3.2.5 in TS 38.521-2 [9] for the NR carrier.

# 7.3B.2.4\_1 Reference sensitivity for Inter-band EN-DC including FR2 (>1 NR CC)

# 7.3B.2.4\_1.1 Reference sensitivity for Inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances for intra-band contiguous CA supporting aggregated BW > 400MHz and for intra-band non-contiguous CA are TBD.
- Measurement Uncertainties and Test Tolerances are FFS for power class 1, 2 and 4.
- In case of frequency separation larger than 800 MHz and in case the device manufacturer does not explicitly declare that the beam peak for a reference (frequency band, CBW) or (frequency band combination, CA BW class) is applicable for a group of other intra-band contiguous combinations and CA BW classes, according to Table A.4.3.9-6 in 38.508-2, following aspect of beam peak search procedures for CA is FFS: RB allocation, power level, channel bandwidth configuration, per CC approach or all CC combined approach, etc
- Testing of extreme conditions for FR2 is FFS.

## 7.3B.2.4\_1.1.1 Test purpose

Same test purpose as in clause 7.3B.2.4.1.

## 7.3B.2.4\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC including FR2 with 2 NR DL CCs in either intra-band contiguous or intra-band non-contiguous configuration.

#### 7.3B.2.4\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3B.1.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.3B.2.4\_1.1.4 Test description

For inter-band EN-DC including FR2 UE configured as 2 NR DL CCs and 1 LTE DL CC, the test description of 2DL FR2 CA for reference sensitivity is the same as in corresponding clause of clause 7.3A.2.1.4 in TS 38.521-2 [9] with the exceptions described below.

# 7.3B.2.4\_1.1.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.5.1, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-2 [9] clause 5.3A and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2 or clause 5.4.2A. All valid configurations shall be tested with applicable test parameters for inter-band EN-DC including FR2 configuration specified in clause 5.5B.5, and the configuration for NR carrier are shown in TS 38.521-2 [9] Table 7.3A.2.1.4.1-1.

For Initial conditions as in clause 7.3A.2.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.

3.1. The E-UTRA downlink signal level, uplink signal level are configured as per clause 4.7 with parameters set according to Table 4.7-1 and propagation conditions set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.3A.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

### 7.3B.2.4\_1.1.4.2 Test Procedure

Same test procedure as in clause 7.3A.2.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 7.3B.2.4 1.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1.

#### 7.3B.2.4\_1.1.5 Test requirement

For each NR component carrier, the test requirement is the same as in clause 7.3A.2.1.5 in TS 38.521-2 [9].

# 7.3B.2.4\_1.2 Reference sensitivity for Inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances for intra-band contiguous CA supporting aggregated BW > 400MHz and for intra-band non-contiguous CA are TBD.
- Measurement Uncertainties and Test Tolerances are FFS for power class 1, 2 and 4.
- In case of frequency separation larger than 800 MHz and in case the device manufacturer does not explicitly declare that the beam peak for a reference (frequency band, CBW) or (frequency band combination, CA BW class) is applicable for a group of other intra-band contiguous combinations and CA BW classes, according to Table A.4.3.9-6 in 38.508-2, following aspect of beam peak search procedures for CA is FFS: RB allocation, power level, channel bandwidth configuration, per CC approach or all CC combined approach, etc
- Testing of extreme conditions for FR2 is FFS.

### 7.3B.2.4\_1.2.1 Test purpose

Same test purpose as in clause 7.3B.2.4\_1.1.1.

#### 7.3B.2.4\_1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC including FR2 with 3 NR DL CCs in either intra-band contiguous or intra-band non-contiguous configuration.

# 7.3B.2.4\_1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3B.2.4\_1.1.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 7.3B.2.4 1.2.4 Test description

For inter-band EN-DC including FR2 UE configured as 3 NR DL CCs and 1 LTE DL CC, the test description of 3DL FR2 CA for reference sensitivity is the same as in corresponding clause of clause 7.3A.2.2.4 in TS 38.521-2 [9], with the exceptions described in clause 7.3B.2.4 1.1.4.1 and clause 7.3B.2.4 1.1.4.2.

# 7.3B.2.4\_1.2.5 Test requirement

For each NR component carrier, the test requirement is the same as in clause 7.3A.2.1.5 in TS 38.521-2 [9].

# 7.3B.2.4\_1.3 Reference sensitivity for Inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances for intra-band contiguous CA supporting aggregated BW > 400MHz and for intra-band non-contiguous CA are TBD.
- Measurement Uncertainties and Test Tolerances are FFS for power class 1, 2 and 4.
- In case of frequency separation larger than 800 MHz and in case the device manufacturer does not explicitly declare that the beam peak for a reference (frequency band, CBW) or (frequency band combination, CA BW class) is applicable for a group of other intra-band contiguous combinations and CA BW classes, according to Table A.4.3.9-6 in 38.508-2, following aspect of beam peak search procedures for CA is FFS: RB allocation, power level, channel bandwidth configuration, per CC approach or all CC combined approach, etc
- Testing of extreme conditions for FR2 is FFS.

#### 7.3B.2.4 1.3.1 Test purpose

Same test purpose as in clause 7.3B.2.4 1.1.1.

# 7.3B.2.4\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC including FR2 with 4 NR DL CCs in either intra-band contiguous or intra-band non-contiguous configuration.

#### 7.3B.2.4\_1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3B.2.4\_1.1.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.3B.2.4\_1.3.4 Test description

For inter-band EN-DC including FR2 UE configured as 4 NR DL CCs and 1 LTE DL CC, the test description of 4DL FR2 CA for reference sensitivity is the same as in corresponding clause of clause 7.3A.2.3.4 in TS 38.521-2 [9], with the exceptions described in clause 7.3B.2.4\_1.1.4.1 and clause 7.3B.2.4\_1.1.4.2.

#### 7.3B.2.4\_1.3.5 Test requirement

For each NR component carrier, the test requirement is the same as in clause 7.3A.2.1.5 in TS 38.521-2 [9].

# 7.3B.2.4\_1.4 Reference sensitivity for Inter-band EN-DC including FR2 (5 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances are FFS.
- In case of frequency separation larger than 800 MHz and in case the device manufacturer does not explicitly declare that the beam peak for a reference (frequency band, CBW) or (frequency band combination, CA BW class) is applicable for a group of other intra-band contiguous combinations and CA BW classes, according to Table A.4.3.9-6 in 38.508-2, following aspect of beam peak search procedures for CA is FFS: RB allocation, power level, channel bandwidth configuration, per CC approach or all CC combined approach, etc
- Testing of extreme conditions for FR2 is FFS.

# 7.3B.2.4\_1.4.1 Test purpose

Same test purpose as in clause 7.3B.2.4\_1.1.1.

# 7.3B.2.4\_1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC including FR2 with 5 NR DL CCs in either intra-band contiguous or intra-band non-contiguous configuration.

#### 7.3B.2.4 1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3B.2.4\_1.1.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

### 7.3B.2.4 1.4.4 Test description

For inter-band EN-DC including FR2 configured as 5 NR DL CCs and 1LTE DL CC, the test description of 5DL FR2 CA for reference sensitivity is the same as in corresponding clause of clause 7.3A.2.4.4 in TS 38.521-2 [9], with the exceptions described in clause 7.3B.2.4\_1.1.4.1 and clause 7.3B.2.4\_1.1.4.2.

## 7.3B.2.4\_1.4.5 Test requirement

For each NR component carrier, the test requirement is the same as in clause 7.3A.2.1.5 in TS 38.521-2 [9].

## 7.3B.2.4 1.5 Reference sensitivity for Inter-band EN-DC including FR2 (6 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances are FFS.
- In case of frequency separation larger than 800 MHz and in case the device manufacturer does not explicitly declare that the beam peak for a reference (frequency band, CBW) or (frequency band combination, CA BW class) is applicable for a group of other intra-band contiguous combinations and CA BW classes, according to Table A.4.3.9-6 in 38.508-2, following aspect of beam peak search procedures for CA is FFS: RB allocation, power level, channel bandwidth configuration, per CC approach or all CC combined approach, etc
- Testing of extreme conditions for FR2 is FFS.

# 7.3B.2.4\_1.5.1 Test purpose

Same test purpose as in clause 7.3B.2.4\_1.1.1.

#### 7.3B.2.4 1.5.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC including FR2 with 6 NR DL CCs in either intra-band contiguous or intra-band non-contiguous configuration.

# 7.3B.2.4\_1.5.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3B.2.4\_1.1.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

### 7.3B.2.4 1.5.4 Test description

For inter-band EN-DC including FR2 configured as 6 NR DL CCs and 1LTE DL CC, the test description of 6DL FR2 CA for reference sensitivity is the same as in corresponding clause of clause 7.3A.2.5.4 in TS 38.521-2 [9], with the exceptions described in clause 7.3B.2.4\_1.1.4.1 and clause 7.3B.2.4\_1.1.4.2.

# 7.3B.2.4\_1.5.5 Test requirement

For each NR component carrier, the test requirement is the same as in clause 7.3A.2.1.5 in TS 38.521-2 [9].

# 7.3B.2.4\_1.6 Reference sensitivity for Inter-band EN-DC including FR2 (7 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances are FFS.
- In case of frequency separation larger than 800 MHz and in case the device manufacturer does not explicitly declare that the beam peak for a reference (frequency band, CBW) or (frequency band combination, CA BW class) is applicable for a group of other intra-band contiguous combinations and CA BW classes, according to Table A.4.3.9-6 in 38.508-2, following aspect of beam peak search procedures for CA is FFS: RB allocation, power level, channel bandwidth configuration, per CC approach or all CC combined approach, etc
- Testing of extreme conditions for FR2 is FFS.

#### 7.3B.2.4\_1.6.1 Test purpose

Same test purpose as in clause 7.3B.2.4\_1.1.1.

#### 7.3B.2.4 1.6.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC including FR2 with 7 NR DL CCs in either intra-band contiguous or intra-band non-contiguous configuration.

#### 7.3B.2.4\_1.6.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3B.2.4\_1.1.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.3B.2.4\_1.6.4 Test description

For inter-band EN-DC including FR2 configured as 7 NR DL CCs and 1LTE DL CC, the test description of 7DL FR2 CA for reference sensitivity is the same as in corresponding clause of clause 7.3A.2.6.4 in TS 38.521-2 [9], with the exceptions described in clause 7.3B.2.4\_1.1.4.1 and clause 7.3B.2.4\_1.1.4.2.

## 7.3B.2.4\_1.6.5 Test requirement

For each NR component carrier, the test requirement is the same as in clause 7.3A.2.1.5 in TS 38.521-2 [9].

#### 7.3B.2.4 1.7 Reference sensitivity for Inter-band EN-DC including FR2 (8 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances are FFS.
- In case of frequency separation larger than 800 MHz and in case the device manufacturer does not explicitly declare that the beam peak for a reference (frequency band, CBW) or (frequency band combination, CA BW class) is applicable for a group of other intra-band contiguous combinations and CA BW classes, according to Table A.4.3.9-6 in 38.508-2, following aspect of beam peak search procedures for CA is FFS: RB allocation, power level, channel bandwidth configuration, per CC approach or all CC combined approach, etc
- Testing of extreme conditions for FR2 is FFS.

# 7.3B.2.4\_1.7.1 Test purpose

Same test purpose as in clause 7.3B.2.4\_1.1.1.

# 7.3B.2.4\_1.7.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC including FR2 with 8 NR DL CCs in intra-band contiguous configuration.

#### 7.3B.2.4\_1.7.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3B.2.4\_1.1.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.3B.2.4\_1.7.4 Test description

For inter-band EN-DC including FR2 configured as 8 NR DL CCs and 1LTE DL CC, the test description of 8DL FR2 CA for reference sensitivity is the same as in corresponding clause of clause 7.3A.2.7.4 in TS 38.521-2 [9], with the exceptions described in clause 7.3B.2.4\_1.1.4.1 and clause 7.3B.2.4\_1.1.4.2.

#### 7.3B.2.4\_1.7.5 Test requirement

For each NR component carrier, the test requirement is the same as in clause 7.3A.2.1.5 in TS 38.521-2 [9].

# 7.3B.2.4D Reference sensitivity for inter-band EN-DC including FR2 for UL MIMO

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach can be applied and only NR carriers need to be tested.

No test case details are specified. Given UE's Rx performance would not be impacted by the Tx configuration in NR FR2 TDD bands, the requirements in this test case can be well covered in 7.3B.2.4 and 7.3B.2.4\_1 and don't need to be tested again.

# 7.3B.2.5 Reference sensitivity for Inter-band EN-DC including FR1 and FR2 (3 CCs)

# 7.3B.2.5.1 Test purpose

Same test purpose as in 7.3B.2 in TS 38.521-1 [8] for NR FR1 carrier(s) and 7.3.2 in TS 38.521-2 [9] for NR FR2 carrier(s).

# 7.3B.2.5.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for reference sensitivity apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 7.3B.

# 7.3B.2.5D Reference sensitivity for inter-band EN-DC including FR1 and FR2 for UL MIMO

# 7.3B.2.5D.1 Test purpose

Same test purpose as in clause 7.3D in TS 38.521-1 [8] for NR FR1 carrier and 7.3D in TS 38.521-2 [9] for NR FR2 carrier.

# 7.3B.2.5D.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for reference sensitivity apply and are tested as part of the EN-DC within FR1 as in clause 7.3 in TS 38.521-1 [8] and EN-DC within FR2 as in clause 7.3 in TS 38.521-2 [9].

7.3B.2.6 Void

# 7.3B.3 $\Delta R_{IB,c} \Delta R_{IBNC}$ for EN-DC

#### 7.3B.3.0 General

For the UE which supports inter-band EN-DC or NE-DC configuration, the minimum requirement for reference sensitivity in Table 7.3.1-1 and Table 7.3.1-1a in TS.36101 [5], clause 7.3.2, 7.3A.2, 7.3C.2 in TS 38.101-1 [2] and clause 7.3.2, 7.3A.2 in TS 38.101-2 [3] shall be increased by the amount given in  $\Delta R_{IB,c}$   $\Delta R_{IBNC}$  in Tables below where unless otherwise stated, the same  $\Delta R_{IB,c}$ ,  $\Delta R_{IBNC}$  are applicable to NR band(s) part for DC configurations which have the same NR operating band combination. Unless otherwise stated,  $\Delta R_{IB,c}$  or  $\Delta R_{IBNC}$  is set to zero.

In case the UE supports more than one of band combinations for CA, SUL or DC, and an operating band belongs to more than one band combinations then

- When the operating band frequency range is  $\leq 1$  GHz, the applicable additional  $\Delta R_{IB,c}$  shall be the average value for all band combinations defined in clause 7.3A, 7.3B, 7.3C in this specification and 7.3A, 7.3B in TS 38.101-3 [4], truncated to one decimal place that apply for that operating band among the supported band combinations. In case there is a harmonic relation between low band UL and high band DL, then the maximum  $\Delta R_{IB,c}$  among the different supported band combinations involving such band shall be applied.
- When the operating band frequency range is > 1 GHz, the applicable additional  $\Delta R_{\rm IB,c}$  shall be the maximum value for all band combinations defined in clause 7.3A, 7.3B, 7.3C in this specification and 7.3A, 7.3B in TS 38.101-3 [4] for the applicable operating bands.

Unless  $\Delta R_{IB,c}$  is specified for the NE-DC configuration, the specified  $\Delta R_{IB,c}$  for the EN-DC configuration including same bands as the corresponding NE-DC configuration is applicable for the NE-DC configuration.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.3B.3.

# 7.3B.3.1 Reference sensitivity ΔR<sub>IB,c</sub> for Intra-band Contiguous EN-DC

**FFS** 

# 7.3B.3.2 Reference sensitivity ΔR<sub>IB,c</sub> for Intra-band non-contiguous EN-DC

Table 7.3B.3.2-1: Intra-band non-contiguous EN-DC with one uplink configuration on E-UTRA for reference sensitivity

DC	Aggregated channel bandwidth (LTE+NR)		\A/ //MLI=\	UL E- UTRA	ΔR <sub>IBNC</sub>	Duplex
configuration	E-UTRA	NR	⋅ W <sub>gap</sub> / (MHz)	allocation	(dB)	mode

- 7.3B.3.3  $\Delta R_{IB,c}$  for Inter-band EN-DC within FR1
- 7.3B.3.3.1  $\Delta R_{IB,c}$  for EN-DC in two bands

Table 7.3B.3.3.1-1:  $\Delta R_{IB,c}$  due to EN-DC(two bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔR <sub>IB,c</sub> (dB)
DC_1_n28	n28	0.2
	1	0.2
DC_1_n77	n77	0.5
DC_1_n78	n78	0.5
	2	0.3
DC_2_n66	n66	0.3
DO 0 = 70	2	0.2
DC_2_n78	n78	0.5
DC 2 n41	n41	03
DC_3_n41	114 1	0.54
DC_3_n77	3	0.2
DC_3_III1	n77	0.5
DC_3_n78	3	0.2
DC_3_II76	n78	0.5
DC_5_n78	5	0.2
	n78	0.5
DC_7_n8	n8	0.2
DC_7_n71	n71	0.2
DC_7_n77	n77	0.5
DC_7_n78, DC_7-7_n78	n78	0.5
DC_8_n77	8	0.2
DC_6_II/ I	n77	0.5
DC_8_n78	8	0.2
DC_0_II/6	n78	0.5
DC_11_n77	n77	0.5
DC_11_n78	n78	0.5
DC_12_n5	12	0.3
	n5	0.5
DC_12_n66	12	0.5
DC_12_n78	12	0.2
	n78	0.5
DC_18_n77	n77	0.5
DC_19_n77	n77	0.5
DC_19_n78	n78	0.5
DC_20_n78	n78	0.5
DC_21_n77	n77	0.5
DC_21_n78	n78	0.5
DC_25_n41	n41	01
	1141	$0.5^{2}$
DC_26_n77	n77	0.5
DC_26_n78	n78	0.5
DC_28_n51	n51	0.2
DC_28_n77	28	0.2
	n77	0.5
DC_28_n78	28	0.2
	n78	0.5
DC_30_n66	30	0.5
	n66	0.4
DC_38_n78	38	0.4
	n78	0.5
DC_39-n41	39	0.2
	n41	0.2
DC_39_n79	n79	0.5
DC_40_n78	40	0.45
	n78	0.55
DC_40_n79	n79	0.5
DC_41_n77	n77	0.5
DC_41_n78	n78	0.5
DC_41_n79	n79	0.5
DC_66_n2	66	0.3
	n2	0.3
DC_66_n25	66	0.3
	n25	0.3

DC_66_n41	66	0.5
	n41	0.5 <sup>1</sup>
	1141	12
DC 66 x79	66	0.2
DC_66_n78	n78	0.5

- NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545-2690MHz.

- NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496-2545MHz.

  NOTE 3: Applicable for the frequency range of 2515-2690 MHz.

  NOTE 4: Applicable for the frequency range of 2496-2515 MHz.

  NOTE 5: Only applicable for UE supporting inter-band carrier aggregation with uplink in one E-UTRA band and without simultaneous Rx/Tx.

7.3B.3.3.2  $$\Delta R_{\text{IB,c}}$$  for EN-DC in three bands

Table 7.3B.3.3.2-1:  $\Delta R_{IB,c}$  due to EN-DC (three bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔR <sub>IB,c</sub> (dB)
DC_1-3_n28	n28	0.2
	1	0.2
DC_1-3_n77	3	0.2
50_10	n77	0.5
	1	0.2
DC_1-3_n78	3	0.2
DO_1-5_1170	n78	0.5
	1	0.2
DC_1_n3-n78	n3	0.2
DC_1_113-1176	n78	0.5
	1	0.3
DC_1-5_n78	5	0.2
DC_1-5_1178	n78	0.5
DC 1.7 x20		
DC_1-7_n28	n28	0.2
<del> -</del>	1	0.2
DC_1-7_n78	7 or n7	0.2
	n78	0.5
<u> </u>	8	0.2
	n77	0.5
DC_1-8_n78	8	0.2
	n78	0.5
DC_1-19_n77	n77	0.5
DC_1-19_n78	n78	0.5
DC_1-19_n79	1	0.3
DC_1-19_f1/9	19	0.3
DO 4.00 = 00	20	0.2
DC_1-20_n28	n28	0.2
DC_1-20_n78	n78	0.5
DC_1-21_n77	n77	0.5
	1	0.2
DC_1-21_n78	n78	0.5
DC_1-28_n78	28 or n28	0.2
DC_1_n28-n78	n78	0.5
	1	0.3
DC_1_n28-n79	28	0.3
DC_1-41_n28	n28	0.3
DC_1-41_n77	n77	0.5
DC_1-41_n78		0.5
DC_1-41_11/6	n78 1	
DC 1 42 p77	·	0.2
DC_1-42_n77	42	0.5
	n77	0.5
F0 ( 12 ==	1	0.2
DC_1-42_n78	42	0.5
	n78	0.5
DC_1-42_n79	42	0.5
DC_1_n77-n79	1	0.2
	n77	0.5
DC_1_n78-n79	n78	0.5
	2	0.3
DC_2-5_n66	n66	0.3
	n71	0.2
DC_2-13_n66	2	0.3
DC_2-2-13_n66	n66	0.3
DC_2-29_n260	2	0
DC_2-14_n66	2	0.3
DC_2-14_n66	n66	0.3
DC_2-30_n5, DC_2-2-	2	0.4
30_n5	30	0.5
30_H3	2	0.5
DC 0.00 -00		
DC_2-30_n66	30	0.5
	n66	0.4
	2	0.3

DC_2-66_n5 DC_2A-2A-66A_n5A DC_2-66-66_n5 DC_2A-2A-66A-	66	0.3
66An5A		
	2	0.3
DC_2-66_n41	66	0.5
	n41	0.51
	2	12
DC_2-66_n71B	2 66	0.3
	2	0.3
DC_2-66_n78	66	0.3
	n78	0.5
	3	0.2
DC_3_n1-n77	n1	0.2
	n77	0.5
	3	0.2
DC_3_n1-n78	n1	0.2
	n78	0.5 0.2
DC_3-5_n78	<u>3</u> 5	0.2
DC_3-5_1176	n78	0.5
DC_3-7_n8	n8	0.2
	3	0.2
DC_3-7_n78	7 or n7	0.2
DC_3-7-7_n78	n78	0.5
DC_3-8_n28	8	0.2
DO_3-0_1120	n28	0.1
	3	0.2
DC_3-8_n78	8	0.2
	n78	0.5
DC_3-18_n77	<u>3</u> n77	0.2
	3	0.2
DC_3-18_n78	n78	0.5
DO 0.40 ::77	3	0.2
DC_3-19_n77	n77	0.5
DC_3-19_n78	3	0.2
B0_0 10_11/0	n78	0.5
DC_3-20_n28	20	0.1
	n28	0.1
DC_3-20_n78 —	<u>3</u> n78	0.5
	3	0.3
DC_3-21_n77	21	0.5
	n77	0.5
	3	0.3
DC_3-21_n78	21	0.5
	n78	0.5
	3	0.3
DC 2.24 = 70	21	0.5
DC_3-21_n79	28	0.1 0.1
	<u>n5</u> n41	0.1 0¹/0.5²
DC_3-28_n78	3	0.2
DC_3_n28-n78	n78	0.5
	3	0
DC_3-41_n28	41	0 <sup>1</sup> /0.5 <sup>2</sup>
	n28	0
	3	0.2
DC_3-41_n77	41	01
		0.52
DC 2.42 =77	<u>n77</u>	0.5
DC_3-42_n77	3	0.2

	42	0.5
<u> </u>	n77	0.5
	3	0.2
DC_3-42_n78	42	0.5
	n78	0.5
	3	0.2
DC_3-42_n79	42	0.5
	3	0.2
DC_3_n77-n79	n77	0.5
	3	0.2
DC_3_n78-n79	n78	0.5
	5	0.2
DC_5-7_n78	7	0.2
	n78	0.52
B0 5 00 00	30	0.5
DC_5-30_n66	n66	0.4
	7	0.2
DC_7_n1-n78	n1	0.2
	n78	0.5
DC_7-8_n3	8	0.2
	20	0.2
DC_7-20_n28	n28	0.2
DC_7-20_n78	n78	0.5
DC_7-28_n78	n78	0.5
DC_7_n28-n78	n78	0.5
DC_14-66_n2	66	0.3
DC_14-66-66_n2	n2	0.3
DC_18-41_n77	n77	0.5
DC_18-41_n78	n78	0.5
DC_19-21_n77	n77	0.5
DC_19-21_n78	n78	0.5
	42	0.5
DC_19-42_n77	n77	0.5
50 40 40 70	42	0.5
DC_19-42_n78	n78	0.5
DC_19-42_n79	42	0.5
DC_19_n77-n79	n77	0.5
DC_19_n78-n79	n78	0.5
	n3	0.2
DC_20_n3-n78	n78	0.5
	20	0.2
DC_20_n28-n78	n28	0.2
	n78	0.5
DO 00 00 70	38	0.4
DC_20-38_n78	n78	0.5
DC_20_n76-n78	n78	0.5
DC 21 42 577	42	0.5
DC_21-42_n77	n77	0.5
DC_21-42_n78	42	0.5
	n78	0.5
DC_21-42_n79	42	0.5
DC_21_n77-n79	n77	0.5
DC_21_n78-n79	n78	0.5
DC_28_n7-n78	n78	0.5
	28	0.2
DC_28-41_n78	n78	0.5
	n79	0.5
	28	0.2
DC_28-42_n78	42	0.5
	n78	0.5
DC 66 n5	66	0.4
DC_66_n5	n5	0.5
DC 44 42 570	42	0.5
DC_41-42_n78	n78	0.5
1	0	1 0.0

- NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545-2690MHz.
- NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496-2545MHz.
- NOTE 3: The requirement is applied for UE transmitting on the frequency range of 2515 2690 MHz.
- NOTE 4: The requirement is applied for UE transmitting on the frequency range of 2496 2515 MHz.
- NOTE 5: Only applicable for UE supporting inter-band carrier aggregation with uplink in one NR band and without simultaneous Rx/Tx.

# 7.3B.3.3.3 $\Delta R_{IB,c}$ for EN-DC in four bands

Table 7.3B.3.3.3-1:  $\Delta R_{\rm IB,c}$  due to EN-DC (four bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	$\Delta R_{IB,c}$ (dB)
DC_1-3-7_n28	n28	0.2
	1	0.3
DC_1-3-7_n78	3	0.3
	7 or n7	0.3
	n78	0.5
	1	0.2
DC_1-3-8_n78	3	0.2
DC_1-3-6_11/6	8	0.2
	n78	0.5
	1	0.2
DC_1-3-19_n78	3	0.2
	n78	0.5
DC 4.2.20 m20	20	0.2
DC_1-3-20_n28	n28	0.2
	1	0.2
DC_1-3-20_n78	3	0.2
	n78	0.5
	1	0.2
DC 1 2 21 x77	3	0.3
DC_1-3-21_n77	21	0.5
	n77	0.5
	1	0.2
DC 4 2 24 = 70	3	0.3
DC_1-3-21_n78	21	0.5
	n78	0.5
DC 1 2 21 p70	3	0.3
DC_1-3-21_n79	21	0.5
	1	0.2
DC_1-3-28_n78	3	0.2
DC_1-3_n28-n78	28 or n28	0.2
	n78	0.5

	1	0.2
DC_1-3-42_n78	3	0.2
	42	0.5
	n78	0.5
	1	0.2
DC_1-3-42_n79	3	0.2
	42	0.5
50 10 77 70	1	0.2
DC_1-3_n77-n79	3	0.2
	n77	0.5
DO 4.0 70 70	1	0.2
DC_1-3_n78-n79	3	0.2
	n78	0.5
DO 4 0 OUI 70 00	1	0.2
DC_1-3_SUL_n78-n80	3	0.2
	n78	0.5
DC_1-7-20_n28	20	0.2
	n28	0.2
	1	0.2
DC_1-7-20_n78	7	0.2
	20	0.2
	n78	0.5
	1	0.2
DC_1-7-28_n78	7	0.2
202	28	0.2
	n78	0.5
	1	0.2
DC_1-7_n28-n78	7	0.2
	n28	0.2
	n78	0.5
	1	0.2
DC_1-19-42_n77	42	0.5
	n77	0.5
DC_1-19-42_n78	42	0.5
	n78	0.5
DC_1-19-42_n79	42	0.5
	1	0.3
DC_1-19_n77-n79	19	0.3
	n77	0.5
DO 4.40 70 70	1	0.3
DC_1-19_n78-n79	19	0.3
	n78	0.5
DO 1 00 00 70	20	0.2
DC_1-20_n28-n78	n28	0.2
	n78	0.5
DC 4 24 42 =77	1	0.2
DC_1-21-42_n77	42	0.5
	n77	0.5
DC_1-21-42_n78	42	0.5
	n78	0.5
DC_1-21-42_n79	42	0.5
DC_1-21_n77-n79	n77	0.5
DC_1-21_n78-n79	n78	0.5
DC 4 40 = 77 = 70	1	0.2
DC_1-42_n77-n79	42 n77	0.5
	n77	0.5
DC 4.40 =70 =70	1 42	0.2
DC_1-42_n78-n79	42	0.5
	n78	0.5
DC 0.740 =00	2	0.3
DC_2-7-13_n66	7	0.5
	n66	0.5
DC_2-7-66_n66	2	0.3
DC_2-7-7-66_n66	7	0.5
	66	0.5

1	n66	I
	2	0.6
DC_2-7-66_n78		0.5
DC_2-7-7-66_n78	66	0.6
	n78	0.8
DC_2-14-66_n2	2	0.3
DC_2-14-66_n2 —	66	0.3
DO_2-14-00-00_112	n2	0.3
DC_2-14-66_n66	2	0.3
DC_2-14-66_n66 —	66	0.3
	n66	0.3
50 0000 5	2	0.4
DC_2-30-66_n5	30	0.5
	66	0.4
DC_2-66-(n)71	2	0.3
	66	
	<u>3</u> 7	0.3 0.3
DC_3-7_n1-n78	n1	0.3
	n78	0.5
	20	0.2
DC_3-7-20_n28	n28	0.1
	3	0.2
DC_3-7-20_n78	7	0.2
	n78	0.5
	3	0.2
DC_3-7-28_n78	7	0.2
DC_3-7_n28-n78	28 or n28	0.2
	n78	0.5
	3	0.3
DC_3-19-21_n78	21	0.5
	n78	0.5
DC_3-19-21_n79	3	0.3
	21	0.5
DO 0 40 40 77	3	0.2
DC_3-19-42_n77	42	0.5
	<u>n77</u>	0.5
DC_3-19-42_n78	<u>3</u> 42	0.2 0.5
DC_3-19-42_11/6	n78	0.5
	3	0.2
DC_3-19-42_n79	42	0.5
	3	0.2
DC_3-19_n78-n79	n78	0.5
	3	0.2
DO 0 00 00 70	20	0.2
DC_3-20_n28-n78	n28	0.2
	n78	0.5
	3	0.3
DC_3-21_n77-n79	21	0.5
	n77	0.5
	3	0.3
DC_3-21_n78-n79	21	0.5
	n78	0.5
	3	0.5
DC_3-41-42_n77	41	01/0.52
	42	0.5
	n77	0.5
<u> </u>	3	0.5
DC_3-41-42_n78	41 42	0 <sup>1</sup> /0.5 <sup>2</sup>
		0.5 0.5
	n78 3	0.5
DC_3-41-42_n79	3 41	0.5 0 <sup>1</sup> /0.5 <sup>2</sup>
DO_5-41-42_11/8	42	1
	44	0.5

	3	0.2
DC_3-42_n77-n79	42	0.5
	n77	0.5
	3	0.2
DC_3-42_n78-n79	42	0.5
	n78	0.5
	20	0.2
DC_7-20_n28-n78	n28	0.2
	n78	0.5
	12	0.5
DC_12-30-66_n260	30	0.5
	66	0.4
DC 40 24 42 =77	42	0.5
DC_19-21-42_n77	n77	0.5
DC 40 24 42 =70	42	0.5
DC_19-21-42_n78	n78	0.5
DC_19-21-42_n79	42	0.5
DC_19-21_n77-n79	n77	0.5
DC_19-21_n78-n79	n78	0.5
DC 40 42 p77 p70	42	0.5
DC_19-42_n77-n79	n77	0.5
DC 40 40 = 70 = 70	42	0.5
DC_19-42_n78-n79	n78	0.5
DC 24 42 =77 =70	42	0.5
DC_21-42_n77-n79	n77	0.5
DC 24 42 =70 =70	42	0.5
DC_21-42_n78-n79	n78	0.5

NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545 - 2690 MHz.

NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496 - 2545 MHz.

NOTE 3: The requirement is applied for UE transmitting on the frequency range of 2515 - 2690 MHz.

NOTE 4: The requirement is applied for UE transmitting on the frequency range of 2496 - 2515 MHz.

7.3B.3.3.4  $$\Delta R_{\text{IB,c}}$$  for EN-DC in five bands

Table 7.3B.3.3.4-1:  $\Delta R_{IB,c}$  due to EN-DC (five bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔR <sub>IB,c</sub> (dB)
DC_1-3-7-20_n28	20	0.2
DO_1-3-7-20_1120	n28	0.2
	1	0.2
DC_1-3-7-20_n78	3	0.2
DO_1 0 7 20_1170	7	0.2
	n78	0.5
	1	0.2
	3	0.2
DC_1-3-7-28_n78	7	0.2
	28	0.2
	n78	0.5
	1	0.2
	3	0.2
DC_1-3-7_n28-n78	7	0.2
	n28	0.2
	n78	0.5
	1	0.2
DC_1-3-19-42_n79	3	0.2
	42	0.5
	1	0.2
	3	0.2
DC_1-3-20_n28-n78	20	0.2
	n28	0.2
	n78	0.5
	1	0.2
	3	0.3
DC_1-3-21-42_n78	21	0.5
	42	0.5
	n78	0.2
	1	0.2
	3	0.3
DC_1-3-21-42_n79	21	0.5
	42	0.5
	n79	0.0
	1	0.2
	7	0.2
DC_1-7-20_n28-n78	20	0.2
	n28	0.2
	n78	0.5
DC 4.40.04.40.~70	42	0.5
DC_1-19-21-42_n78	n78	0.5
DC_1-19-21-42_n79	42	0.5
	1	0.2
DC_1-19-42_n77-n79	42	0.5
	n77	0.5
DC 4 40 40 = 70 = 70	42	0.5
DC_1-19-42_n78-n79	n78	0.5
	1	0.2
DC 1 21 42 577 570	21	0.2
DC_1-21-42_n77-n79	42	0.5
	n77	0.5
	21	0.2
DC_1-21-42_n78-n79	42	0.5
	n78	0.5
	3	0.2
DO 0.7.00 70	7	0.2
DC_3-7-20_n28-n78	20	0.2
	n28	0.2
	3	0.3
DO 0 40 04 40 TO	21	0.5
DC_3-19-21-42_n78	42	0.5
	n78	0.5
DO 0 40 04 40 TO	3	0.3
DC_3-19-21-42_n79	21	0.5

	42	0.5			
DC 19-21-42 n77-n79	42	0.5			
DC_19-21-42_1171-1179	n77	0.5			
DC 10 21 12 n70 n70	42	0.5			
DC_19-21-42_n78-n79	n78	0.5			

NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545 – 2690 MHz. NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496 – 2545 MHz.

# 7.3B.3.3.5 $\Delta R_{IB,c}$ for EN-DC six bands

Table 7.3B.3.3.5-1:  $\Delta R_{IB,c}$  due to EN-DC (six bands)

Inter-band EN-DC configuration	E-UTRA or NR Band	ΔR <sub>IB,c</sub> (dB)
DC 4.3.7.30 #30 #70	1	0.2
	3	0.2
	7	0.2
DC_1-3-7-20_n28-n78	20	0.2
	n28	0.2
	n78	0.5

# 7.3B.3.3a $\Delta R_{IB,c}$ for Inter-band NE-DC within FR1

Unless  $\Delta R_{IB,c}$  is specified in this clause, the value of  $\Delta R_{IB,c}$  for the correspondingly specified EN-DC configuration in clause 7.3B.3.3 is applicable.

# 7.3B.3.4 Reference sensitivity for $\Delta R_{IB,c}$ Inter-band EN-DC including FR2

The  $\Delta R_{IB,c}$  for NR FR2 band of inter-band CA defined in tables 5.5B.5.1-1 to 5.5B.5.5-1 is set to zero.

# 7.3B.3.5 Reference sensitivity for $\Delta R_{IB,c}$ Inter-band EN-DC including both FR1 and FR2

The  $\Delta R_{IB,c}$  for NR FR2 band of inter-band CA defined in tables 5.5B.6.2-1 to 5.5B.6.5-1 is set to zero and  $\Delta R_{IB,c}$  for constituent E-UTRA and NR FR1 bands is the same as those for the corresponding inter band EN-DC configuration without the NR FR2 bands specified in 7.3B.3.3.

# 7.3B.4 EIS Spherical Coverage for Inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- Measurement Uncertainties and Test Tolerances are FFS for power class 1, 2 and 4.

#### 7.3B.4.1 Test purpose

Same test purpose as in clause 7.3.4.1 in TS 38.521-2 [9] for the NR carrier.

# 7.3B.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR DL CC.

### 7.3B.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.3.4.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-2 [9] clause 7.3.4.

# 7.3B.4.4 Test description

## 7.3B.4.4.1 Initial conditions

Same test description as in clause 7.3.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1. For Initial conditions as in clause 7.3.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.3.4.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 7.3.4.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

# 7.3B.4.5 Test requirement

Same test requirement as in clause 7.3.4.5 in TS 38.521-2 [9] for the NR carrier.

# 7.4 Void

# 7.4A Maximum Input Level for CA

# 7.4A.1 Test purpose

Same test purpose as in clause 7.4 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 7.4 in TS 38.521-2 [9] for NR FR2 carrier(s).

# 7.4A.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for maximum input level apply and are tested in TS 38.521-1 [8] clause 7.4 and 7.4A and TS 38.521-2 [9] clauses 7.4 and 7.4A.

# 7.4B Maximum Input Level for DC

# 7.4B.0 Minimum conformance requirement

# 7.4B.0.1 Intra-band contiguous EN-DC

Intra-band contiguous EN-DC maximum input level requirement and parameters are defined in Table 7.4B.0.1-1.

# Table 7.4B.0.1-1: Maximum Input

Power in Largest CC, E-UTRA or NR, dBm	$X^1$

Power in	each other CC, dBm	$X^{1}-10*log10(N_{x}SCS_{x}/N_{y}SCS_{y})$
NOTE 1:	Power in Largest E-UTRA or NR bandwic	th CC, listed in Table 7.4-1 [2]
NOTE 2:	N <sub>x</sub> , SCS <sub>x</sub> is the number of RB's and Sub of	carrier spacing in the largest carrier bandwidth and
	could be LTE or NR carrier	
NOTE 3:	N <sub>y</sub> , SCS <sub>y</sub> is the number of RB's in any oth	er carrier.
NOTE 4:	For NR carrier, the transmitter shall be se	t to 4dB below P <sub>CMAX_L</sub> at the minimum uplink
	configuration specified in Table 7.3.2-3 [2	with Pcmax_L as defined in clause 6.2B.4.
NOTE 5:		be set to 29dB below P <sub>CMAX_L</sub> at the minimum uplink
		with P <sub>CMAX</sub> L as defined in clause 6.2B.4.

# 7.4B.0.2 Intra-band non-contiguous EN-DC

For the E-UTRA sub-block containing one or multiple CC's, the requirement is defined in clause 7.4.1 for single carrier operation and in clause 7.4.1 A for CA in TS 36.101 [5].

For the NR sub-block, the requirement is defined in clause 7.4 in TS 38.101-1 [2].

# 7.4B.0.3 Inter-band EN-DC within FR1

Maximum input level requirement for E-UTRA single carrier and CA operation specified in clauses 7.4.1 and 7.4.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.4 and 7.4A of TS 38.101-1 [2] apply.

# 7.4B.0.4 Inter-band EN-DC including FR2

Maximum input level requirement for E-UTRA single carrier and CA operation specified in clauses 7.4.1 and 7.4.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.4 and 7.4A of TS 38.101-2 [3] apply.

# 7.4B.0.5 Inter-band EN-DC including both FR1 and FR2

Maximum input level requirement for E-UTRA single carrier and CA operation specified in clauses 7.4.1 and 7.4.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.4 and 7.4A of TS 38.101-1 [2] and TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.4B.

# 7.4B.1 Maximum Input Level for Intra-Band Contiguous EN-DC (2 CCs)

# 7.4B.1.1 Test purpose

Maximum input level for intra-band contiguous EN-DC tests the UE's ability to receive data with a given average throughput for a specified reference measurement channel, under conditions of high signal level, ideal propagation and no added noise.

A UE unable to meet the throughput requirement under these conditions will decrease the coverage area near to an e-NodeB or a gNB.

# 7.4B.1.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

### 7.4B.1.3 Minimum conformance requirements

Refer to Clause 7.4B.0.1 for the intra-band contiguous EN-DC maximum input level requirement.

Exception requirements are defined for this test, therefore LTE agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

The normative reference for this requirement is TS 38.101-3 [4] Clause 7.4B.1.

#### 7.4B.1.4 Test Description

# 7.4B.1.4.1 Initial Condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in table 5.5B.2-1, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each intra-band contiguous EN-DC configuration specified in clause 5.3B.1.2, and are shown in table 7.4B.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2.for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A.2 for E-UTRA RMC for FDD , and TS 38.521-1 [8] Annex A.2 for NR RMC Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 7.4B.1.4.1-1: Test configuration table

Initial Conditions									
Test Environment Normal									
as specified in TS 38.508-1 [6] clause 4.1						Nomai			
	Frequencie					Mid range	2		
as specified in 18 36.506-1 [6] clause 4.3.1									
Test EN-DC bandwidth combination as specified in									
			ndwidth cor	nbination se	ets	Lowest N	RB_agg, Highest	t N <sub>RB_agg</sub> (NO	TE 5)
	orted by the								
		NR cell as	s specified in	n TS 38.521	-1 [8]	Lowest			
Table	5.3.5-1								
	D			or Intra-ban	a Con	tiguous Er	N-DC Configu		
		nlink Conf		E LIEDA		ND	Uplink Config		E LIEDA
Tes t ID	NR Madulati	NR RB allocation	E-UTRA Modulat	E-UTRA RB	NR Modulation		NR RB	E-UTRA Modulati	E-UTRA RB
לוט	on	anocation	ion	allocation			allocation	on	allocation
	OII		CP-	anocation				OII	anocation
1	CP-OFDM		OFDM	Full RB		s-OFDM	NOTE 2	QPSK	NOTE 3
' '	64QAM	(NOTE 1)	64QAM	1 dii 10	C	PSK	NOTE 2	QISIN	NOILS
	00 05014		CP-			05014			
2	CP-OFDM	-	OFDM	Full RB		s-OFDM	NOTE 2	QPSK	NOTE 3
	256QAM	(NOTE 1)	256QAM		C	PSK			
NOTE	1: Full f	RB allocation	on shall be ι	ised per ead	ch SCS	and chan	nel BW as spe	cified in Tabl	e 7.3.2.4.1-2
	of TS	38.521-1 [	8].						
NOTE					ach S0	S and cha	nnel BW as sp	ecified in Ta	ble
			38.521-1 [8						
NOTE 3: Same RB allocation shall be used per the E-UTRA band and channel BW as specified in Table									
	7.3.3-2 of TS 36.521 [10].								
NOTE	NOTE 4: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with								
NOTE			orts connect		4! !·-	46 - EN D	2		
NOTE	NOTE5: If the UE supports multiple CC combinations in the EN-DC configuration with the same								
	NRB_agg, select the combination to test as follows:								

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.1 for SS diagram and A.3.2 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.

Lowest ENBW: NR component with lowest NRB is tested.
 Highest ENBW: NR component with highest NRB is tested.

3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0, C.1,C.2,C3.1 and TS 38.521-1 [8] Annex C.0,C.1,C.2,C3.1 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H.0,H.1,H.2,H.3.1 and TS 38.521-1 [8] Annex G.0,G.1,G.2,G.3.1 for E-UTRA CG and NR CG respectively.

- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.4B.1.4.3.

### 7.4B.1.4.2 Test Procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Tables 7.4B.1.4.1 on the E-UTRA CC and NR CC. The SS sends downlink MAC padding bits on the DL RMC.
- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.4B.1.4.1-1 on the E-UTRA CC and NR CC. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. SS sets the Downlink signal level for the E-UTRA CC and NR CC to the value defined in Table 7.4B.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.4B.1.5-1 for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Measure the average throughput for each component carrier for duration sufficient to achieve statistical significance according to Annex H.2 in TS 38.521-1 [8] for NR band, and Annex G.2 of TS 36.521-1 [10] for EUTRA band.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

# Table 7.4B.1.4.2-1: Void

#### 7.4B.1.4.3 Message Contents

Message contents are according to TS 36.508-1 [11] clause 4.6.1 and TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

#### 7.4B.1.5 Test Requirement

The throughput measurement of each CC derived in test procedure shall be  $\geq 95\%$  of the maximum throughput of the reference measurement channels with parameters specified in Table 7.4B.1.5-1

Table 7.4B.1.5-1: Maximum input level requirement for each CC

	Rx Parameter						
Channel the bandwidth of Largest BW CC CC		Power in the other CC	Power in the Largest CC	Power in the other CC			
5 MHz	-25 <sup>2</sup> -TT	-25 <sup>2</sup> - 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -25 <sup>2</sup> -	-27 <sup>3</sup> -TT	-27 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
10 MHz	-25 <sup>2</sup> -TT	-25 <sup>2</sup> - 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -25 <sup>2</sup> -	-27 <sup>3</sup> -TT	-27 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
15 MHz	-25 <sup>2</sup> -TT	10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -	-27 <sup>3</sup> -TT	-27 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
20 MHz	-25 <sup>2</sup> -TT	-25 <sup>2</sup> - 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT	-27 <sup>3</sup> -TT	-27 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
25 MHz	-24 <sup>2</sup> -TT	-24 <sup>2</sup> - 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -23 <sup>2</sup> -	-26 <sup>3</sup> -TT	-26 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
30 MHz	-23 <sup>2</sup> -TT	-23"- 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -22 <sup>2</sup> -	-25 <sup>3</sup> -TT	-25 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT -24 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
40 MHz	-22 <sup>2</sup> -TT	-22 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -21 <sup>2</sup> -	-24 <sup>3</sup> -TT	-24°-10 log10(NxSCSx/NySCSy) -111			
50 MHz	-21 <sup>2</sup> -TT -20 <sup>2</sup> -TT	-21 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -20 <sup>2</sup> -	-23 <sup>3</sup> -TT -22 <sup>3</sup> -TT	-2310 log10(Nx3C3//Ny3C3y) -11			
60 MHz		-20"- 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -20 <sup>2</sup> -		-22 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
80 MHz	-20 <sup>2</sup> -TT	-20 <sup>2</sup> - 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -20 <sup>2</sup> -	-22 <sup>3</sup> -TT	-22 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
90 MHz	-20 <sup>2</sup> -TT	-20 <sup>2</sup> - 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT -20 <sup>2</sup> -	-22 <sup>3</sup> -TT	-22 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			
100 MHz	-20 <sup>2</sup> -TT	-20 <sup>2</sup> - 10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) - TT	-22 <sup>3</sup> -TT	-22 <sup>3</sup> -10*log10(N <sub>x</sub> SCS <sub>x</sub> /N <sub>y</sub> SCS <sub>y</sub> ) -TT			

- NOTE 1: N<sub>x</sub>, SCS<sub>x</sub> is the number of RB's and Sub carrier spacing in the largest carrier bandwidth and could be LTE or NR carrier.
- NOTE 2: Reference measurement channel refers to Clauses A.3.2.3 or A.3.3.3 in TS 38.521-1 [8] for 64-QAM NR Carrier, and to Tables A.3.2-3, A.3.2-4 for 64QAM in TS 36.521-1 [10] for E-UTRA Carrier.
- NOTE 3: Reference measurement channel refers to Clauses A.3.2.4 or A.3.3.4 in TS 38.521-1 [8] for 256QAM NR Carrier, and Tables A.3.2-5, A.3.2-6 in TS 36.521-1 [10] for 256QAM E-UTRA Carrier.
- NOTE 4: Ny, SCSy is the number of RB's in any other carrier
- NOTE 5: For NR carrier, the transmitter shall be set to 4dB below PCMAX\_L at the minimum uplink configuration specified in Table 7.3.2-3 in TS 38.101-1 [2] with PCMAX\_L as defined in clause 6.2B.4.
- NOTE 6: For E-UTRA carrier, the transmitter shall be set to 29dB below P<sub>CMAX\_L</sub> at the minimum uplink configuration specified in Table 7.3.1-2 in TS 38.101-3 [4] with P<sub>CMAX\_L</sub> as defined in clause 6.2B.4 for single carrier.
- NOTE 7: TT for each frequency is specified in Table 7.4B.1.5-2

Table 7.4B.1.5-2: Test Tolerance (Maximum input level)

f ≤ 3.0GHz	3.0GHz < f ≤6.0GHz
0.7 dB	1.0 dB

# 7.4B.2 Maximum Input Level for Intra-Band Non-Contiguous EN-DC (2 CCs)

# 7.4B.2.1 Test purpose

Maximum input level for intra-band non-contiguous EN-DC tests the UE's ability to receive data with a given average throughput for a specified reference measurement channel, under conditions of high signal level, ideal propagation and no added noise.

A UE unable to meet the throughput requirement under these conditions will decrease the coverage area near to an e-NodeB or a gNB.

# 7.4B.2.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC in FR1 with 2 DL CCs.

# 7.4B.2.3 Minimum conformance requirements

Refer to Clause 7.4B.0.2 for the intra-band non-contiguous EN-DC maximum input level requirement.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.4B.2, and TS 38.101-1 [2] clause 7.4, and TS 38.101-2 [3] clauses 7.4 and 7.4A

No exception requirements for E-UTRA CG and NR CG, LTE agnostic approach applies.

#### 7.4B.2.4 Test Description

Same test description as in clause 7.4.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions in the initial test configuration.

- The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.3, all of these configurations shall be tested with applicable test parameters for each intra-band non-contiguous EN-DC configuration specified in clause 5.3B.1.3, and are shown in table 7.4B.2.4.1-1.

Table 7.4B.2.4.1-1: Test configuration table

Initial Conditions										
	Test Environment									
as specified in TS 38.508-1 [6] clause 4.1					Norma	laxWGap for intra-band non-contiguous EN-DC owest, Mid, Highest of Channel BW for NR CC				
	requencies	30.000 1 [0	1014400 11	·						
	ecified in TS	38.508-1 [6	l clause 4.3	3.1		MaxW	Gap for intra-ba	and non-contig	uous EN-DC	
	N-DC bandw				1					
	5.3B.1.3-1 a					Lowes	t, Mid, Highest	of Channel BV	/ for NR CC	
suppo	rted by the U	E					, , ,			
Test S	SCS for the N	R cell as sp	pecified in 7	TS 38.521	-1 [8]	Lowes	·+			
	5.3.5-1					LOWES	) L			
	Parameters for		onfiguration	n						
Down	link Configura	ation			Uplink	Config	uration			
Test	NR	NR RB	E-UTRA	E-UTRA		IR		E-UTRA	E-UTRA	
ID	Modulation	allocation	Modulati	RB	Modu	ılation	NR RB	Modulation	RB allocation	
			on	allocatio			allocation			
				n		_				
١,	CP-OFDM	NOTE 4	NOTE	NOTE O		T-s-	NOTE 4	NOTE 0	NOTE 0	
1	64QAM	NOTE 1	NOTE 2	NOTE 2		DM PSK	NOTE 1	NOTE 2	NOTE 2	
						T-s-				
2	CP-OFDM	NOTE 1	NOTE 2	NOTE 2			NOTE 1	NOTE 2	NOTE 2	
	256QAM	NOILI	NOILZ	NOTE 2	_	OFDM NOTE 1 NOTE 2 NOTE QPSK				
NOTE	1: Same R	B allocation	n shall be u	sed per m			pecified in Tabl	e 7.4.4.1-1 of	TS 38.521-	
	1 [8].									
NOTE	NOTE 2: Modulation and RB allocation for E-UTRA CC refers to the Table 4.6-2.									
NOTE 3: In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports										
	connected.									

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.6-1 with the exception that

- E-UTRA test frequency are specified in Table 7.4B.2.4.1-1 based on intra-band non-contiguous EN-DC configuration specified in clause 5.3B.1.3.

For Initial conditions as in clause 7.4.4.1 in TS 38.521-1 [8] with the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 6.4.1.4.1 in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 7.4B.2.5 Test Requirement

Same test requirement as in clause 7.4.5 in TS 38.521-1 [8] for NR carrier.

# 7.4B.3 Maximum Input Level for Inter-band EN-DC within FR1 (1 NR CC)

# 7.4B.3.1 Test purpose

Same test purpose as in clause 7.4.1 in TS 38.521-1 [8] for the NR carrier.

# 7.4B.3.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR DL CC.

# 7.4B.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.4.3 in TS 38.521-1 [8] for the NR carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.4B.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.4B.3.4 Test Description

Same test description as in clause 7.4.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.4.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.4.4.1 in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 7.4B.3.5 Test Requirement

Same test requirement as in clause 7.4.5 in TS 38.521-1 [8] for the NR carrier.

# 7.4B.3\_1 Maximum Input Level for EN-DC within FR1 (>2 CCs)

# 7.4B.3\_1.1 Maximum Input Level for EN-DC within FR1 (3 CCs)

Editor's note: The following aspects are either missing or not yet determined:

Only inter-band EN-DC and intra-band non-contiguous EN-DC within FR1 are considered. Testing of intra-band contiguous EN-DC is FFS.

#### 7.4B.3 1.1.1 Test purpose

Same test purpose as in clause 7.4B.3.1.

# 7.4B.3\_1.1.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band or intra-band non-contiguous EN-DC within FR1 with 2 NR DL CCs and one or more E-UTRA DL CC(s).

# 7.4B.3\_1.1.3 Minimum conformance requirements

Refer to Clause 7.4B.0.2 for the intra-band non-contiguous EN-DC and Clause 7.4B.0.3 for the inter-band EN-DC within FR1 maximum input level requirement.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.4B.3\_1.1.4 Test Description

Same test description as in clause 7.4A.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.4A.1.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.4A.1.4.1 in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 7.4B.3\_1.1.5 Test Requirement

Same test requirement as specified in TS 38.521-1 [8] clause 7.4A.1.5 for the NR carrier(s).

# 7.4B.3\_1.2 Maximum Input Level for EN-DC within FR1 (4 CCs)

Editor's note: The following aspects are either missing or not yet determined:

Only inter-band EN-DC and intra-band non-contiguous EN-DC within FR1 are considered. Testing of intra-band contiguous EN-DC is FFS.

### 7.4B.3\_1.2.1 Test purpose

Same test purpose as in clause 7.4B.3.1.

# 7.4B.3\_1.2.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band or intra-band non-contiguous EN-DC within FR1 with 3 NR DL CCs and one or more E-UTRA DL CC(s).

# 7.4B.3\_1.2.3 Minimum conformance requirements

Refer to Clause 7.4B.0.2 for the intra-band non-contiguous EN-DC and 7.4B.0.3 for the inter-band EN-DC within FR1 maximum input level requirement.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.4B.3\_1.2.4 Test Description

Same test description as in clause 7.4A.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.4A.2.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.4A.2.4.1 in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 7.4B.3\_1.2.5 Test Requirement

Same test requirement as specified in TS 38.521-1 [8] clause 7.4A.2.5 for the NR carriers.

# 7.4B.3\_1.3 Maximum Input Level for EN-DC within FR1 (5 CCs)

Editor's note: The following aspects are either missing or not yet determined:

Only inter-band EN-DC and intra-band non-contiguous EN-DC within FR1 are considered. Testing of intra-band contiguous EN-DC is FFS.

# 7.4B.3\_1.3.1 Test purpose

Same test purpose as in clause 7.4B.3.1.

#### 7.4B.3 1.3.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band or intra-band non-contiguous EN-DC within FR1 with 4 NR DL CCs and one or more E-UTRA DL CC(s).

# 7.4B.3\_1.3.3 Minimum conformance requirements

Refer to Clause 7.4B.0.2 for the intra-band non-contiguous EN-DC and Clause 7.4B.0.3 for the inter-band EN-DC within FR1 maximum input level requirement.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.4B.3 1.3.4 Test Description

Same test description as in clause 7.4A.3.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.4A.3.4.1 in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.4A.3.4.1 in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.4B.3\_1.3.5 Test Requirement

Same test requirement as specified in TS 38.521-1 [8] clause 7.4A.3.5 for the NR carrier(s).

## 7.4B.3\_1.4 Maximum Input Level for EN-DC within FR1 (6 CCs)

Editor's note: The test case in this clause is incomplete, the following aspects are either missing or not yet determined:

- Only inter-band EN-DC and intra-band non-contiguous EN-DC within FR1 are considered. Testing of intra-band contiguous EN-DC is FFS.
- The referred test case 7.4A.4 in TS 38.521-1 [8] is incomplete.

#### 7.4B.3 1.4.1 Test purpose

Same test purpose as in clause 7.4B.3.1.

#### 7.4B.3\_1.4.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band or intra-band non-contiguous EN-DC within FR1 with 5 NR DL CCs and one or more E-UTRA DL CC(s).

#### 7.4B.3\_1.4.3 Minimum conformance requirements

Refer to Clause 7.4B.0.2 for the intra-band non-contiguous EN-DC and Clause 7.4B.0.3 for the inter-band EN-DC within FR1 maximum input level requirement.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.4B.3 1.4.4 Test Description

Same test description as in clause [7.4A.4.4] in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause [7.4A.4.4.1] in TS 38.521-1 [8], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for the cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause [7.4A.4.4.1] in TS 38.521-1 [8] is replaced by:

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.4B.3\_1.4.5 Test Requirement

Same test requirement as specified in TS 38.521-1 [8] clause [7.4A.4.5] for the NR carrier(s).

## 7.4B.3a Maximum Input Level for inter-band NE-DC within FR1 (2 CCs)

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 7.4 and 7.4A of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 7.4 and 7.4A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 7.4B.4 Maximum Input Level for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- The referred test case 7.4 in TS 38.521-2 is incomplete.

#### 7.4B.4.1 Test purpose

Same test purpose as in clause 7.4 in TS 38.521-2 [9] for the NR carrier.

#### 7.4B.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR DL CC.

The minimum conformance requirements of NR FR2 carrier in this test case are not testable due to maximum input level unachievable in IFF OTA test setup. Other test setups have not been analysed. Thus the test case will not be tested as part of UE conformance testing.

NOTE: As a result TC 7.4B.4 has not been included in the test case applicability table 4.1.3-1, TS 38.522. This does not preclude the test from being used for R&D or other purposes if deemed useful to all types of NR UE release 15 and forward.

#### 7.4B.4.3 Minimum conformance requirements

Refer to Clause 7.4B.0.4 for the inter-band EN-DC including FR2 maximum input level requirement.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.4B.4.4 Test description

Same test description as in clause 7.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 7.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS36.521-1 [10].

Step 6 of Initial conditions as in clause 7.4.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 7.4.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 7.4B.4.5 Test requirement

Same test requirement as in clause 7.4.5 in TS 38.521-2 [9] for the NR carrier.

# 7.4B.4\_1Maximum Input Level for inter-band EN-DC including FR2 (>1 NR CC)

## 7.4B.4\_1.1 Maximum Input Level for Inter-Band EN-DC including FR2 (2 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 7.4A.1 in TS 38.521-2 is incomplete.

#### 7.4B.4 1.1.1 Test purpose

Same test purpose as in clause 7.4 in TS 38.521-2 [9] for the NR carrier.

## 7.4B.4\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR DL CCs.

The minimum conformance requirements of NR FR2 carrier in this test case are not testable due to maximum input level unachievable in IFF OTA test setup. Other test setups have not been analysed. Thus the test case will not be tested as part of UE conformance testing.

NOTE: As a result TC 7.4B.4\_1.1 has not been included in the test case applicability table 4.1.3-1, TS 38.522. This does not preclude the test from being used for R&D or other purposes if deemed useful to all types of NR UE release 15 and forward.

#### 7.4B.4\_1.1.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.4B.4.3.

## 7.4B.4\_1.1.4 Test description

Same test description as in 7.4A.1.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in 7.4A.1.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS36.521-1 [10].

Step 6 of Initial conditions as in 7.4A.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in 7.4A.1.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 7.4B.4\_1.1.5 Test Requirements

Same test requirement as in 7.4A.1.5 in TS 38.521-2 [9] for the NR carrier(s).

## 7.4B.4\_1.2 Maximum Input Level for Inter-Band EN-DC including FR2 (3 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 7.4A.1 and 7.4A.2 in TS 38.521-2 is incomplete.

#### 7.4B.4\_1.2.1 Test purpose

Same test purpose as in clause 7.4 in TS 38.521-2 [9] for the NR carrier.

#### 7.4B.4 1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR DL CCs.

The minimum conformance requirements of NR FR2 carrier in this test case are not testable due to maximum input level unachievable in IFF OTA test setup. Other test setups have not been analysed. Thus the test case will not be tested as part of UE conformance testing.

NOTE: As a result TC 7.4B.4\_1.2 has not been included in the test case applicability table 4.1.3-1, TS 38.522. This does not preclude the test from being used for R&D or other purposes if deemed useful to all types of NR UE release 15 and forward.

#### 7.4B.4 1.2.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.4B.4.3.

#### 7.4B.4\_1.2.4 Test description

Same test description as in 7.4A.2.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 7.4A.2.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS36.521-1 [10].

Step 6 of Initial conditions as in 7.4A.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in 7.4A.2.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 7.4B.4 1.2.5 Test Requirements

Same test requirement as in clause 7.4A.2.5 in TS 38.521-2 [9] for the NR carrier(s).

## 7.4B.4\_1.3 Maximum Input Level for Inter-Band EN-DC including FR2 (4 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 7.4A.1, 7.4A.2 and 7.4A.3 in TS 38.521-2 is incomplete.

#### 7.4B.4\_1.3.1 Test purpose

Same test purpose as in clause 7.4 in TS 38.521-2 [9] for the NR carrier.

#### 7.4B.4\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR DL CCs.

The minimum conformance requirements of NR FR2 carrier in this test case are not testable due to maximum input level unachievable in IFF OTA test setup. Other test setups have not been analysed. Thus the test case will not be tested as part of UE conformance testing.

NOTE: As a result TC 7.4B.4\_1.3 has not been included in the test case applicability table 4.1.3-1, TS 38.522. This does not preclude the test from being used for R&D or other purposes if deemed useful to all types of NR UE release 15 and forward.

#### 7.4B.4 1.3.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.4B.4.3.

#### 7.4B.4\_1.3.4 Test description

Same test description as in 7.4A.3.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in 7.4A.3.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- 3.1 The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS36.521-1 [10].

Step 6 of Initial conditions as in 7.4A.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in 7.4A.3.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

## 7.4B.4\_1.2.5 Test Requirements

Same test requirement as in 7.4A.3.5 in TS 38.521-2 [9] for the NR carrier(s).

#### 7.4B.4 1.4 Maximum Input Level for Inter-Band EN-DC including FR2 (5 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 7.4A.4 in TS 38.521-2 is incomplete.

#### 7.4B.4\_1.4.1 Test purpose

Same test purpose as in clause 7.4 in TS 38.521-2 [9] for the NR carrier.

#### 7.4B.4\_1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5 NR DL CCs.

The minimum conformance requirements of NR FR2 carrier in this test case are not testable due to maximum input level unachievable in IFF OTA test setup. Other test setups have not been analysed. Thus the test case will not be tested as part of UE conformance testing.

NOTE: As a result TC 7.4B.4\_1.4 has not been included in the test case applicability table 4.1.3-1, TS 38.522. This does not preclude the test from being used for R&D or other purposes if deemed useful to all types of NR UE release 15 and forward.

#### 7.4B.4\_1.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.4B.4.3.

#### 7.4B.4\_1.4.4 Test description

Same test description as in 7.4A.4.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in 7.4A.4.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1 The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] subclause 4.4.3.
- The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS36.521-1 [10].

Step 6 of Initial conditions as in clause 7.4A.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 7.4A.4.4.2 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set TimeAlignmentTimerDedicated IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 7.4B.4\_1.4.5 Test Requirements

Same test requirement as in 7.4A.4.5 in TS 38.521-2 [9] for the NR carrier(s).

## 7.4B.4D Maximum Input Level for inter-band EN-DC including FR2 for UL MIMO

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach can be applied and only NR carriers need to be tested.

No test case details are specified. Given UE's Rx performance would not be impacted by the Tx configuration in NR FR2 TDD bands, the requirements in this test case can be well covered in 7.4B.4 and 7.4B.4\_1 and don't need to be tested again.

## 7.4B.5 Maximum Input Level for inter-band EN-DC including both FR1 and FR2

#### 7.4B.5.1 Test purpose

Same test purpose as in clause 7.4.1 in TS 38.521-1 [8] for NR FR1 carrier and 7.4.1 in TS 38.521-2 [9] for NR FR2 carrier.

#### 7.4B.5.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for maximum input level apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 7.4B.

## 7.4B.5D Maximum Input Level for inter-band EN-DC including FR1 and FR2 for UL MIMO

#### 7.4B.5D.1 Test purpose

Same test purpose as in clause 7.4D.1 in TS 38.521-1 [8] for NR FR1 carrier and 7.4D.1 in TS 38.521-2 [9] for NR FR2 carrier.

#### 7.4B.5D.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for maximum input level apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 7.4B.

## 7.5 Void

## 7.5A Adjacent Channel Selectivity for CA

### 7.5A.0 Test purpose

Same test purpose as in clauses 7.5 and 7.5A in TS 38.521-1 [8] for NR FR1 carrier(s) and clauses 7.5 and 7.5A in TS 38.521-2 [9] for NR FR2 carrier(s).

### 7.5A.1 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for adjacent channel selectivity apply and are tested in clauses 7.5 and 7.5A in TS 38.521-1 [8] and clauses 7.5 and 7.5A in TS 38.521-2 [9].

#### 7.5B Adjacent channel selectivity for DC

#### Minimum Conformance Requirements 7.5B.0

#### 7.5B.0.1 Intra-band contiguous EN-DC

Intra-band contiguous EN-DC ACS requirement and parameters are defined for test case 1 in Table 7.5B.0.1-1 and for test case 2 in Table 7.5B.0.1-2.

Table 7.5B.0.1-1: ACS test case 1

EN-DC Aggregated Bandwidth, MHz	≤100	>100, ≤120	>120, ≤140	>140, ≤160
ACS, dB	X <sup>1</sup>	19.2	18.5	17.9
P <sub>interferer</sub> , dBm	Pı <sup>2</sup>	Aggregated power + 17.7 dB	Aggregated power + 17 dB	Aggregate d power + 16.4dB
Pw in Transmission BW configuration, per CC, dBm		REFSEN	IS +14dB	
NOTE 1: X is ACS level at the 7.5.1A-1 in TS 36.10	•	DC aggregated	Bandwidth fro	m Table
NOTE 2: P <sub>I</sub> is from Table 7.5.1	A-2 in TS 36.	101 [5]		
NOTE 3: Jammer BW and offs from the lowest edge carrier				1 1
NOTE 4: For NR carrier, the tr				

with P<sub>CMAX\_L,f,c,NR</sub> as defined in clause 6.2B.4 from TS 38.101-3 [4]. NOTE 5: For E-UTRA carrier, the transmitter shall be set to 4dB below PCMAX\_L\_E-UTRA,c at the minimum uplink configuration specified in Table 7.3.1-2 in TS 36.101 [5] with PCMAX\_L\_E-UTRA,c as defined in clause 6.2B.4 from

TS 38.101-3 [4] for single carrier.

Table 7.5B.0.1-2: ACS test case 2

	OC Aggregated ridth, ENBW, MHz	≤100	>100, ≤120	>120, ≤140	>140, ≤160		
Bandw	in Transmission idth Configuration, perCC, dBm	Pw <sup>1</sup>	-42.7 +10log <sub>10</sub> (N <sub>RB,c</sub> / N <sub>RB_agg</sub> )	-42 +10log <sub>10</sub> (N <sub>RB,c</sub> /N <sub>RB_agg</sub> )	-41.4 +10log <sub>10</sub> (N <sub>RB,c</sub> /N <sub>RB_agg</sub>		
F	P <sub>interferer</sub> , dBm		-25				
NOTE 1:	E 1: Pw is wanted signal power level at the specified EN-DC aggregated				ted		
	Bandwidth from Table						
NOTE 2:							
	from the lowest edge carrier	of the lowest	carrier and the	highest edge of	of the highest		
NOTE 3:	For NR carrier, the tr	ansmitter shal	I be set to 4dB	below PCMAX_L,	f,c,NR at the		
	minimum uplink confi	guration spec	ified in Table 7.	.3.2-3 in TS 38	.101-1 [2]		
	with P <sub>CMAX_L,f,c,NR</sub> as o	defined in clau	se 6.2B.4 from	TS 38.101-3 [	4].		
NOTE 4:	For E-UTRA carrier,	the transmitte	r shall be set to	29dB below P	CMAX_L_E-		
	UTRA,c at the minimum	uplink config	uration specifie	d in Table 7.3.	1-2 in		
	TS 36.101 [5] with Po						
	TS 38.101-3 [4] for si						

#### 7.5B.0.2 Intra-band non-contiguous EN-DC

For the E-UTRA sub-block containing one or multiple CC's, the requirement is defined in clause 7.5.1 for single carrier operation and in clause 7.5.1A for CA in TS 36.101 [5].

For the NR sub-block, the requirement is defined in clause 7.5 in TS 38.101-1 [2].

The blocker configuration is defined in the general clause 7.1 in TS 38.101-3 [4].

#### 7.5B.0.3 Inter-band EN-DC within FR1

Adjacent channel selectivity requirement for E-UTRA single carrier and CA operation specified in clauses 7.5.1 and 7.5.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.5 and 7.5A of TS 38.101-1 [2] apply.

#### 7.5B.0.3a Inter-band NE-DC within FR1

Adjacent channel selectivity requirement for E-UTRA single carrier and CA operation specified in subclauses 7.5.1 and 7.5.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in subclauses 7.5 and 7.5A of TS 38.101-1 [2] apply.

## 7.5B.0.4 Inter-band EN-DC including FR2

Adjacent channel selectivity requirement for E-UTRA single carrier and CA operation specified in clauses 7.5.1 and 7.5.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.5 and 7.5A of TS 38.101-2 [3] apply.

## 7.5B.0.4a Inter-band NE-DC including FR2

Adjacent channel selectivity requirement for E-UTRA single carrier and CA operation specified in clauses 7.5.1 and 7.5.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.5 and 7.5A of TS 38.101-2 [3] apply.

## 7.5B.0.5 Inter-band EN-DC including both FR1 and FR2

Adjacent channel selectivity requirement for E-UTRA single carrier and CA operation specified in clauses 7.5.1 and 7.5.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.5 and 7.5A of TS 38.101-1 [2] and TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.5B.1, 7.5B.2, 7.5B.3, 7.5B.3a, 7.5B.4, 7.5B.4a, and 7.5B.5.

## 7.5B.1 Adjacent Channel Selectivity for intra-band contiguous EN-DC (2 CCs)

#### 7.5B.1.1 Test purpose

Adjacent channel selectivity (ACS) is a measure of a receiver's ability to receive an NR and E-UTRA signal at its assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

#### 7.5B.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.5B.1.3 Minimum conformance requirements

Refer to Clause 7.5B.0.1 for the intra-band contiguous EN-DC in FR1.

Exception requirements are applicable for NR, therefore LTE anchor agnostic approach is not applied. E-UTRA test points are defined and measurements performed over the aggregated EN-DC bandwidth.

#### 7.5B.1.4 Test description

#### 7.5B.1.4.1 Initial Condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in table 5.5B.2-1, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2.All of these configurations shall be tested with applicable test parameters for each intra-band contiguous EN-DC configuration specified in clause 5.5B.2, and are shown in Table 7.5B.1.4.1-1.

In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.

The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2 for E-UTRA RMC for TDD, TS 36.521-1 [10] Annex A.2 for E-UTRA RMC for FDD, TS 38.521-1 [8] Annex A.2 for NR UL RMC and TS 38.521-1 [8] Annex A.3 for NR DL RMC. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

## Table 7.5B.1.4.1-1: Test Configuration Table

Initial C	Conditions
Test Environment as specified in TS 38.508-1 [6] clause 4.1	Normal
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes	Mid range
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (NOTE 3)
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]	Lowest supported SCS
NR/E-UTRA	Test Parameters

		Do	wnlink Co	nfiguration			Uplink Co	nfiguration	
1	est ID	NR Modulation	NR RB allocation	E-UTRA Modulation	E-UTRA RB allocation	NR Modulation	NR RB allocation	E-UTRA Modulation	E-UTRA RB allocation
	1	CP-OFDM QPSK	Full RB (NOTE 1)	QPSK	Full RB	DFT-s- OFDM QPSK	REFSENS_NR	QPSK	REFSENS_LTE

- NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2 of TS 38.521-1 [8].
- NOTE 2: Test Channel Bandwidths are checked separately for each EN-DC band, which applicable channel bandwidths are specified in Table 5.3B.1.2-1.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same N<sub>RB\_agg</sub>, only the combination with the highest N<sub>RB\_SCG</sub> is tested.
- NOTE 4: REFSENS\_NR and REFSENS\_LTE refer to Uplink configuration in Table 7.3.2.4.1-1 in TS 38.521-1 [8] and Table 7.3.4.1-1 in TS 36.521 [10] for NR and E-UTRA CC respectively.
- NOTE 5: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.
  - 1. Connect the SS to the UE antenna connectors as shown in A.3.1.1 for SS diagram and A.3.2 for UE diagram in TS 38.508-1 [6].
  - 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.

- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.5B.1.4.3.

#### 7.5B.1.4.2 Test Procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.5B.1.4.1-1 on the E-UTRA CC and NR CC, respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.5B.1.4.1-1 on the E-UTRA CC and NR CC. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.5B.0.1-1 (Case 1). For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.5B.0.1-1 for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW.
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the Interferer signal level to the value as defined in Table 7.5B.0.1-1 (Case 1) and frequency below the aggregated component carriers, using a modulated interferer bandwidth as defined in Annex D.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2 in TS 38.521-1 [8] for NR band, and Annex G.2 of TS 36.521-1 [10] for EUTRA band.
- 6. Repeat steps from 3 to 5, using an interfering signal above the aggregated component carriers in Case 1 at step 4.
- 7. Set the Downlink signal level to the value as defined in Table 7.5B.0.1-2 (Case 2). For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.5B.0.1-2 for at least the duration of the Throughput measurement, where MU and Uplink power control window size are defined above.
- 8. Set the Interferer signal level to the value as defined in Table 7.5B.0.1-2 (Case 2) and frequency below the aggregated component carriers, using a modulated interferer bandwidth as defined in Annex D.
- 9. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2 in TS 38.521-1 [8] for NR band, and Annex G.2 of TS 36.521-1 [10] for EUTRA band.
- 10. Repeat steps from 7 to 9, using an interfering signal above the aggregated component carriers in Case 2 at step 8.
- 11. Repeat for applicable channel bandwidths and operating band combinations in both Case 1 and Case 2.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

#### 7.5B.1.4.3 Message Contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED

Message contents exceptions are according to TS 36.521-1 [10] clause 7.3.4.3 for each network signalling value..

#### 7.5B.1.5 Test requirement

The throughput measurement of each CG derived in test procedure shall be  $\geq 95\%$  of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively under the conditions specified in Table 7.5B.0.1-1, and also under the conditions specified in Table 7.5B.0.1-2.

# 7.5B.2 Adjacent Channel Selectivity for intra-band non-contiguous EN-DC (2 CCs)

#### 7.5B.2.1 Test purpose

Same test purpose as clause 7.5B.1.1

### 7.5B.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.5B.2.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.5B.0.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 7.5B.2.4 Test description

Same test description as in subclause 7.5.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

## Table 7.5B.2.4.1-1: Test Configuration Table

Initial Cor	nditions					
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different DC bandwidth classes	Low with maxWgap, High with maxWgap					
Test EN-DC bandwidth combination as specified in Table 5.3B.1.3-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 1)					
	NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same					
N <sub>RB_agg</sub> , only the combination with the higher	est N <sub>RB_SCG</sub> is tested.					

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 7.5B.2.4.1-1.

For initial conditions as in clause 7.5.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of Initial conditions as in clause 7.5.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508-1 [6] clause 4.5.

Step 3 of Test procedure as in clause 7.6.2.4.2 in TS 38.521-1 [8] shall treat the in-gap tests as below: For intra-band non-contiguous EN-DC of two sub-blocks with channel bandwidth larger than or equal to 5 MHz, the existing requirements apply for in-gap tests only if the corresponding interferer frequency offsets satisfy the following condition in relation to the sub-block gap size  $W_{\text{gap}}$ , so that the interferer frequency position does not change the nature of the core requirement tested:

 $W_{gap} \ge 2 \cdot |FInterferer (offset)| - BW_{Channel}$ 

Same test procedure as specified in clause 7.5.4.2 in TS 38.521-1 [8].

#### 7.5B.2.5 Test requirement

Same test requirement as specified in TS 38.521-1 [8] Clause 7.5.5.

# 7.5B.3 Adjacent Channel Selectivity for inter-band EN-DC within FR1 (1 NR CC)

#### 7.5B.3.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR DL CC.

## 7.5B.3.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.5B.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.3.4 Test description

Same test description as in clause 7.5.4.2 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.5.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.5.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.5.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.5B.3.5 Test requirement

Same test requirement as specified in TS 38.521-1 [8] Clause 7.5.5.

## 7.5B.3\_1 Adjacent Channel Selectivity for EN-DC within FR1 (>2 CCs)

Editor's note: The following aspects are either missing or not yet determined:

The ACS for EN-DC within FR1 (2 NR CCs) test cases below cover only inter-band and intra-band non-contiguous EN-DC. Testing of intra-band contiguous EN-DC is FFS.

## 7.5B.3\_1.1 Adjacent Channel Selectivity for EN-DC within FR1 (2 NR CCs)

#### 7.5B.3\_1.1.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.3\_1.1.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous or inter-band EN-DC within FR1 with 2 NR DL CCs.

#### 7.5B.3\_1.1.3 Minimum conformance requirements

The minimum conformance requirements for intra-band non-contiguous or inter-band EN-DC within FR1 are defined in clause 7.5B.0.2 and 7.5B.0.3 respectively.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.3\_1.1.4 Test description

Same test description as in clause 7.5A.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.5A.1.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.5.4.1 or 7.5A.1.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.5A.1.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 7.5B.3\_1.1.5 Test requirement

Same test requirement as specified in TS 38.521-1 [8] Clause 7.5A.1.5 for the NR carrier(s).

## 7.5B.3\_1.2 Adjacent Channel Selectivity for EN-DC within FR1 (3 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The ACS for EN-DC within FR1 (3 NR CCs) test cases below cover only inter-band and intra-band non-contiguous EN-DC. Testing of intra-band contiguous EN-DC is FFS.

#### 7.5B.3\_1.2.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.3 1.2.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous or inter-band EN-DC within FR1 with 3 NR DL CCs.

#### 7.5B.3 1.2.3 Minimum conformance requirements

The minimum conformance requirements for intra-band non-contiguous and inter-band EN-DC within FR1 are defined in clause 7.5B.0.2 and 7.5B.0.3 respectively.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.3\_1.2.4 Test description

Same test description as in clause 7.5A.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.5A.2.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.5A.2.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.5A.2.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

## 7.5B.3\_1.2.5 Test requirement

Same test requirement as specified in TS 38.521-1 [8] Clause 7.5A.2.5 for the NR carrier(s).

## 7.5B.3\_1.3 Adjacent Channel Selectivity for EN-DC within FR1 (4 NR CCs)

Editor's note: The following aspects are either missing or not yet determined:

- The ACS for EN-DC within FR1 (4 NR CCs) test cases below cover only inter-band and intra-band non-contiguous EN-DC. Testing of intra-band contiguous EN-DC is FFS.

#### 7.5B.3\_1.3.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.3\_1.3.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous or inter-band EN-DC within FR1 with 4 NR DL CCs.

#### 7.5B.3\_1.3.3 Minimum conformance requirements

The minimum conformance requirements for intra-band non-contiguous and inter-band EN-DC within FR1 are defined in clause 7.5B.0.2 and 7.5B.0.3 respectively.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.3\_1.3.4 Test description

Same test description as in clause 7.5A.3.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.5A.3.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.5A.3.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.5A.3.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.5B.3\_1.3.5 Test requirement

Same test requirement as specified in TS 38.521-1 [8] Clause 7.5A.3.5 for the NR carriers.

## 7.5B.3\_1.4 Adjacent Channel Selectivity for EN-DC within FR1 (5 NR CCs)

Editor's note: The test cases in this clause are incomplete. The following aspects are either missing or not yet determined:

- The ACS for EN-DC within FR1 (5 NR CCs) test cases below cover only inter-band and intra-band non-contiguous EN-DC. Testing of intra-band contiguous EN-DC is FFS.
- The referred clauses [7.5A.4.4], [7.5A.4.4.1] and [7.5A.4.5] have not been defined in TS 38.521-1 [8] yet.

#### 7.5B.3 1.4.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.3\_1.4.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous or inter-band EN-DC within FR1 with 5 NR DL CCs.

## 7.5B.3\_1.4.3 Minimum conformance requirements

The minimum conformance requirements for intra-band non-contiguous and inter-band EN-DC within FR1 are defined

in clause 7.5B.0.2 and 7.5B.0.3 respectively.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.3\_1.4.4 Test description

Same test description as in clause [7.5A.4.4] in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause [7.5A.4.4.1] in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause [7.5A.4.4.1] in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause [7.5A.4.4.1] in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.5B.3\_1.4.5 Test requirement

Same test requirement as specified in TS 38.521-1 [8] Clause [7.5A.4.5] for the NR carriers.

# 7.5B.3a Adjacent Channel Selectivity for inter-band NE-DC within FR1 (2 CCs)

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 7.5 and 7.5A of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 7.5 and 7.5A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 7.5B.4 Adjacent Channel Selectivity for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: Following aspects are either missing or not yet determined:

- Measurement Uncertainty is FFS for power class 1 FR2b, 2 and 4.
- The minimum conformance requirements for Case 2 in this test case are not testable due to maximum input level unachievable in IFF OTA test setup. Other test setups have not been analysed.

#### 7.5B.4.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR DL CC.

#### 7.5B.4.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.5B.0.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.4.4 Test description

#### 7.5B.4.4.1 Initial Condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.5.1, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-2 [9] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each inter-band EN-DC including FR2 configuration specified in clause 5.5B.5.1, and the configuration for NR carrier are shown in TS 38.521-2 [9] Table 7.5.4.1-1.

For initial conditions as in clause 7.5.4.1 in TS 38.521-2 [9], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of initial conditions as in clause 7.5.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

#### 7.5B.4.4.2 Test Procedure

Same test procedure as specified in clause 7.5.4.2 in TS 38.521-2 [9] with the following exceptions for E-UTRA anchor

On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

### 7.5B.4.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1.

#### 7.5B.4.5 Test requirement

Same test requirement as specified in clause 7.5.5 of TS 38.521-2 [9] for the NR carrier(s).

# 7.5B.4\_1Adjacent Channel Selectivity for inter-band EN-DC including FR2 (>1 NR CC)

## 7.5B.4\_1.1 Adjacent Channel Selectivity for inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: This test case is not complete. Following aspects are either missing or not yet determined:

- Working assumption: to avoid LTE CA testing in inter-band EN-DC including FR2 and only PCC band is configured.
- MU and TT are FFS.

- [Table 7.5A.4.1-1] in TS 38.521-2 [9] where the configuration for NR CA carriers are shown is FFS.
- [clause 7.5A.4.1] in TS 38.521-2 [9] where the initial conditions for NR CA is FFS.
- [clause 7.5A.4.2] in TS 38.521-2 [9] where the test procedure for NR CA is FFS.
- [Clause 7.5A.5] in TS 38.521-2 [9] where the test requirements for NR CA is FFS.
- [Clause 7.5A] in TS 38.521-2 [9] where the test description for NR CA is FFS.
- How to choose the LTE anchor when LTE CA is implemented is FFS.

#### 7.5B.4\_1.1.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.4\_1.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2 NR DL CCs.

#### 7.5B.4\_1.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.5B.0.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.4 1.1.4 Test description

For inter-band EN-DC including FR2 UE configured as "2 NR DL CCs and 1 LTE DL CC", the test description of 2DL FR2 CA for adjacent channel selectivity is the same as in corresponding clause 7.5A in TS 38.521-2 [9] for FR2 with the exceptions described below.

#### 7.5B.4 1.1.4.1 Initial Condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.5.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-2 [9] clause 5.3A and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each inter-band EN-DC including FR2 configuration specified in clause 5.5B.5.2, and the configuration for NR carriers are shown in TS 38.521-2 [9] [Table 7.5A.4.1-1].

For initial conditions as in [clause 7.5A.4.1] in TS 38.521-2 [9], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of initial conditions as in [clause 7.5A.4.1] in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

#### 7.5B.4\_1.1.4.2 Test Procedure

Same test procedure as specified in [clause 7.5A.4.2] in TS 38.521-2 [9] with the following exceptions for E-UTRA anchor

On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.5B.4\_1.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.1.

#### 7.5B.4\_1.1.5 Test requirement

Same test requirement as specified in TS 38.521-2 [9] [Clause 7.5A.5].

## 7.5B.4\_1.2 Adjacent Channel Selectivity for inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: This test case is not complete. Following aspects are either missing or not yet determined:

- Working assumption: to avoid LTE CA testing in inter-band EN-DC including FR2 and only PCC band is configured.
- MU and TT are FFS.
- [Table 7.5A.4.1-1] in TS 38.521-2 [9] where the configuration for NR CA carriers are shown in FFS.
- [clause 7.5A.4.1] in TS 38.521-2 [9] where the initial conditions for NR CA in FFS.
- [clause 7.5A.4.2] in TS 38.521-2 [9] where the test procedure for NR CA in FFS.
- [Clause 7.5A.5] in TS 38.521-2 [9] where the test requirements for NR CA in FFS.
- [Clause 7.5A] in TS 38.521-2 [9] where the test description for NR CA is FFS.
- How to choose the LTE anchor when LTE CA is implemented is FFS.

#### 7.5B.4\_1.2.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.4 1.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR DL CCs.

#### 7.5B.4\_1.2.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.5B.0.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.4\_1.2.4 Test description

For inter-band EN-DC including FR2 UE configured as "3 NR DL CCs and 1 LTE DL CC", the test description of 3DL FR2 CA for adjacent channel selectivity is the same as in corresponding part of clause 7.5A in TS 38.521-2 [9] for FR2 with the exceptions described below.

#### 7.5B.4 1.2.4.1 Initial Condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.5.3, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-2 [9] clause 5.3A and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each inter-band EN-DC including FR2 configuration specified in clause 5.5B.5.3, and the configuration for NR carriers are shown in TS 38.521-2 [9] [Table 7.5A.4.1-1].

For initial conditions as in [clause 7.5A.4.1] in TS 38.521-2 [9], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of initial conditions as in [clause 7.5A.4.1] in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

#### 7.5B.4\_1.2.4.2 Test Procedure

Same test procedure as specified in clause 7.5B.4.2.4.2.

#### 7.5B.4\_1.2.4.3 Message contents

Same message contents as specified in clause 7.5B.4.2.4.3.

#### 7.5B.4\_1.2.5 Test requirement

Same test requirement as specified in clause 7.5B.4.2.5.

#### 7.5B.4\_1.3 Adjacent Channel Selectivity for inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: This test case is not complete. Following aspects are either missing or not yet determined:

- Working assumption: to avoid LTE CA testing in inter-band EN-DC including FR2 and only PCC band is configured.
- MU and TT are FFS.
- [Table 7.5A.4.1-1] in TS 38.521-2 [9] where the configuration for NR CA carriers are shown is FFS.
- [clause 7.5A.4.1] in TS 38.521-2 [9] where the initial conditions for NR CA is FFS.
- [clause 7.5A.4.2] in TS 38.521-2 [9] where the test procedure for NR CA is FFS.
- [Clause 7.5A.5] in TS 38.521-2 [9] where the test requirements for NR CA is FFS.
- [Clause 7.5A] in TS 38.521-2 [9] where the test description for NR CA is FFS.
- How to choose the LTE anchor when LTE CA is implemented is FFS.

#### 7.5B.4\_1.3.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

### 7.5B.4\_1.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR DL CCs.

#### 7.5B.4\_1.3.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.5B.0.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.4\_1.3.4 Test description

For inter-band EN-DC including FR2 UE configured as " 4 NR DL CCs and 1 LTE DL CC", the test description of 4DL FR2 CA for adjacent channel selectivity is the same as in corresponding part of clause 7.5A in TS 38.521-2 [9] for FR2 with the exceptions described below.

#### 7.5B.4\_1.3.4.1 Initial Condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.5.4, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-2 [9] clause 5.3A and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each inter-band EN-DC including FR2 configuration specified in clause 5.5B.5.4, and the configuration for NR carriers are shown in TS 38.521-2 [9] [Table 7.5A.4.1-1].

For initial conditions as in [clause 7.5A.4.1] in TS 38.521-2 [9], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of initial conditions as in [clause 7.5A.4.1] in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

#### 7.5B.4\_1.3.4.2 Test Procedure

Same test procedure as specified in clause 7.5B.4.2.4.2.

#### 7.5B.4 1.3.4.3 Message contents

Same message contents as specified in clause 7.5B.4.2.4.3.

#### 7.5B.4\_1.3.5 Test requirement

Same test requirement as specified in clause 7.5B.4.2.5.

#### 7.5B.4\_1.4 Adjacent Channel Selectivity for inter-band EN-DC including FR2 (5 NR CCs)

Editor's note: This test case is not complete. Following aspects are either missing or not yet determined:

- Working assumption: to avoid LTE CA testing in inter-band EN-DC including FR2 and only PCC band is configured.
- MU and TT are FFS.
- [Table 7.5A.4.1-1] in TS 38.521-2 [9] where the configuration for NR CA carriers are shown is FFS.
- [clause 7.5A.4.1] in TS 38.521-2 [9] where the initial conditions for NR CA is FFS.

- [clause 7.5A.4.2] in TS 38.521-2 [9] where the test procedure for NR CA is FFS.
- [Clause 7.5A.5] in TS 38.521-2 [9] where the test requirements for NR CA is FFS.
- [clause 5.2B.5.5] where EN-DC operating bands have been specified is FFS.
- [Clause 7.5A] in TS 38.521-2 [9] where the test description for NR CA is FFS.
- How to choose the LTE anchor when LTE CA is implemented is FFS.

#### 7.5B.4\_1.4.1 Test purpose

Same test purpose as in clause 7.5B.1.1.

#### 7.5B.4\_1.4.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5 NR DL CCs.

#### 7.5B.4\_1.4.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.5B.0.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.5B.4\_1.4.4 Test description

For inter-band EN-DC including FR2 UE configured as "5 NR DL CCs and 1 LTE DL CC", the test description of 5DL FR2 CA for adjacent channel selectivity is the same as in corresponding part of clause 7.5A in TS 38.521-2 [9] for FR2 with the exceptions described below.

#### 7.5B.4\_1.4.4.1 Initial Condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in [clause 5.5B.5.5], channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-2 [9] clause 5.3A and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each inter-band EN-DC including FR2 configuration specified in clause 5.5B.5.5, and the configuration for NR carriers are shown in TS 38.521-2 [9] [Table 7.5A.4.1-1].

For initial conditions as in [clause 7.5A.4.1] in TS 38.521-2 [9], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of initial conditions as in [clause 7.5A.4.1] in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

#### 7.5B.4\_1.4.4.2 Test Procedure

Same test procedure as specified in clause 7.5B.4.2.4.2.

#### 7.5B.4\_1.4.4.3 Message contents

Same message contents as specified in clause 7.5B.4.2.4.3.

#### 7.5B.4\_1.4.5 Test requirement

Same test requirement as specified in clause 7.5B.4.2.5.

## 7.5B.4D Adjacent Channel Selectivity for inter-band EN-DC including FR2 for UL MIMO

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach can be applied and only NR carriers need to be tested.

No test case details are specified. Given UE's Rx performance would not be impacted by the Tx configuration in NR FR2 TDD bands, the requirements in this test case can be well covered in 7.5B.4 and 7.5B.4\_1 and don't need to be tested again.

## 7.5B.5 Adjacent Channel Selectivity for inter-band EN-DC including both FR1 and FR2

#### 7.5B.5.1 Test purpose

Same test purpose as in 7.5.1 in TS 38.521-1 [8] for NR FR1 carrier and 7.5.1 in TS 38.521-2 [9] for NR FR2 carrier.

### 7.5B.5.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for adjacent channel selectivity apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 7.5B.

## 7.5B.5D Adjacent Channel Selectivity for inter-band EN-DC including FR1 and FR2 for UL MIMO

#### 7.5B.5D.1 Test purpose

Same test purpose as in 7.5D in TS 38.521-1 [8] for NR FR1 carrier and 7.5D in TS 38.521-2 [9] for NR FR2 carrier.

#### 7.5B.5D.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for adjacent channel selectivity apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 7.5B.

## 7.6 Void

## 7.6A Blocking characteristics for CA

#### 7.6A.1 Test purpose

Same test purpose as in clause 7.6 in TS 38.521-1 [8] for NR FR1 carrier(s) and clause 7.6 in TS 38.521-2 [9] for NR FR2 carrier(s).

#### 7.6A.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The NR/5GC requirements for blocking characteristics apply and are tested in TS 38.521-1 [8] clause 7.6 and 7.6A and TS 38.521-2 [9] clauses 7.6 and 7.6A.

## 7.6B Blocking characteristics for DC

## 7.6B.1 General

The blocking characteristic for EN-DC in FR1 is a measure of the receiver's ability of an UE that support EN-DC in FR1 to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

## 7.6B.2 Inband blocking for DC

## 7.6B.2.0 Minimum Conformance Requirements

### 7.6B.2.0.1 Intra-band contiguous EN-DC

Intra-band contiguous EN-DC in-band blocking requirement and parameters are defined in Table 7.6B.2.0.1-1.

Table 7.6B.2.0.1-1: In-band blocking for intra-band contiguous EN-DC

	DC Aggregated ndwidth, MHz	≤100	>100, ≤120	>120, ≤140	>140, ≤160
Pw ii	n Transmission	REFSENS	S + Aggregated	BW specific va	alue below
	dth Configuration, er CC, dBm	Pw <sup>1</sup> 16.8 17.5 18			
NOTE 1:	Pw is wanted signal p			00 0	ted
Bandwidth from Table 7.6.1.1A-1 in TS 36.101 [5].					
NOTE 2:	ΓΕ 2: Interferer values are specified from Table 7.6.1.1A-2 in TS 36.101 [5].				
NOTE 3:	OTE 3: Jammer BW and offset is from Table 7.6.1.1A-1 in TS 36.101 [5] and is				
	applied from the lowest edge of the lowest carrier and the highest edge of the highest carrier.				
NOTE 4:	For NR carrier, the tra	ansmitter shal	I be set to 4dB	below PCMAX L.	f,c,NR at the
	minimum uplink confi				
	as defined in clause			[=]	S 5 (,,,o,, v. v
NOTE 5:	For E-UTRA carrier,	the transmitte	r shall be set to	29dB below P	CMAX_L_E-
	UTRA,c at the minimum				
	TS 36.101 [5] with Po				
	carrier.	7, 7, 7, 2, 2, 2, 3, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,		aacc c.25.110	

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.2.1.

#### 7.6B.2.0.2 Intra-band non-contiguous EN-DC

For the E-TRA sub-block containing one or multiple CC's, the requirement is defined in clause 7.6.1.1 for single carrier operation and in clause 7.6.1.1A for CA in TS 36.101 [5].

For the NR sub-block, the requirement is defined in clause 7.6.2 in TS 38.101-1 [2].

The blocker configuration is defined in the general clause 7.1.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.2.2.

#### 7.6B.2.0.3 Inter-band EN-DC within FR1

Inband blocking requirement for E-UTRA single carrier and CA operation specified in clauses 7.6.1.1 and 7.6.1.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.2 and 7.6A.2 of TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.2.3.

#### 7.6B.2.0.3a Inter-band NE-DC within FR1

Inband blocking requirement for E-UTRA single carrier and CA operation specified in clauses 7.6.1.1 and 7.6.1.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.2 and 7.6A.2 of TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.2.3a.

#### 7.6B.2.0.4 Inter-band EN-DC including FR2

Inband blocking requirement for E-UTRA single carrier and CA operation specified in clauses 7.6.1.1 and 7.6.1.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.2 and 7.6A.2 of TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.2.4.

### 7.6B.2.0.5 Inter-band EN-DC including both FR1 and FR2

Inband blocking requirement for E-UTRA single carrier and CA operation specified in clauses 7.6.1.1 and 7.6.1.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.2 and 7.6A.2 of TS 38.101-1 [2] and TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.2.5.

## 7.6B.2.1 Inband blocking for intra-band contiguous EN-DC (2 CCs)

## 7.6B.2.1.1 Test Purpose

In-band blocking is defined for an unwanted interfering signal falling into the range from 15MHz below to 15MHz above the UE receive band, at which the relative throughput shall meet or exceed the requirement for the specified measurement channels. The lack of in-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

#### 7.6B.2.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.6B.2.1.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6 B.2.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.6B.2.1.4 Test Description

#### 7.6 B.2.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.2.1.4.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 7.6B.2.1.4.1-1: Test configuration table

			Initial (	Conditions			
		ecified in TS 38	3.508-	Normal			
1 [6] clause 4							
Test Frequen				Mid range			
		1.3.1 for differe	nt EN-				
DC bandwidt							
Test EN-DC bandwidth combination as			Lowest N <sub>RB</sub> a	aa, Highest N	RB agg		
specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE			(NOTE 3)	33, 0	33		
			E 1 in	Lowest			
TS 38.521-1	NR Test SCS as specified in Table 5.3.5-1 in			Lowest			
13 30.321-1	[O]	NF	R/F-UTRA	∟ Test Paramete	ers		
De	ownlink Co	onfiguration	<u>,                                    </u>			nfiguration	
NR	NR RB	E-UTRA	E-UTRA	NR		E-UTRA	E-UTRA
Modulation	allocation	Modulation	RB	Modulation	NR RB allocation	Modulation	RB
			allocation		anocation		allocation
CP-OFDM	Full RB	0.7017		DFT-s-		0.001	
QPSK	(NOTE 1)	QPSK	Full RB	OFDM	REFSENS	QPSK	REFSENS
NOTE 4: For		ب مطالمات مدند		QPSK	DW a	anaitiadia T	<u> </u>
		TS 38.521-1		ch SCS and ch	iannei Bvv as	s specified in Ta	able
				separately for	each ENLDC	band, which a	nnlicable
				able 5.3B.1.2-1.		bana, willon a	pplicable
						uration with the	e same
				highest NRB_S			James
						nd Table 7.3.3-	2 in [10]
		UTRA CC res					, ,
NOTE 5: In	an E-UTRA	a band or FR1	band where	e UE supports	4Rx, the test	t shall be perfor	med only
					NS requireme	ent (TS 38.521-	1 [8] Table
7.3	3.2.5-2) is ι	ised in the test	requireme	nts.			

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.1 for SS diagram and clause A.3.2 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.2.1.4.3.

#### 7.6B.2.1.4.2 Test procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.2.1.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.2.1.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.6B.2.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.6B.2.1.5-1 for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the signal generator for an interfering signal below the aggregated component carriers in Case 1 according to Table 7.6B.2.1.5-1.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers in Case 1 at step 4.
- 7. Repeat steps from 4 to 6, using interfering signals in Case 2 at steps 4 and 6.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

## 7.6B.2.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

#### 7.6B.2.1.5 Test Requirement

The throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively with parameters specified in Table 7.6B.2.1.5-1 for the specified wanted signal mean power in the presence of interfering signals.

Table 7.6B.2.1.5-1: In-band blocking for intra-band contiguous EN-DC

EN-DC Aggregated Bandwidth, MHz	≤100	>100, ≤120	>120, ≤140	>140, ≤160		
Pw in Transmission	REFSENS	S + Aggregated	BW specific v	alue below		
Bandwidth Configuration, perCC, dBm	Pw <sup>1</sup>	Pw <sup>1</sup> 16.8 17.5 18				
NOTE 1: P <sub>W</sub> is wanted signal power level at the specified EN-DC aggregated						
Bandwidth from Ta	ole 7.6.1.1A-1 ii	n TS 36.101 [5]				
NOTE 2: Interferer values ar	TE 2: Interferer values are specified from Table 7.6.1.1A-2 in TS 36.101 [5].					
NOTE 3: Jammer BW and of	fset is from Tab	le 7.6.1.1A-1 ir	TS 36.101 [5]	and is		
applied from the low highest carrier.	applied from the lowest edge of the lowest carrier and the highest edge of the					
NOTE 4: For NR carrier, the	transmitter sha	Il be set to 4dB	below PCMAX_L,	f,c,NR at the		
minimum uplink co	figuration spec	ified in TS 38.1	01-1 [2], Table	7.3.2-3 with		
P <sub>CMAX_L,f,c,NR</sub> as def	ned in clause 6	.2B.4.				
NOTE 5: For E-UTRA carrie	, the transmitte	r shall be set to	29dB below P	CMAX_L_E-		
UTRA,c at the minimu	m uplink config	uration specifie	d in TS 36.101	[5], Table		
7.3.1-2 with Pcmax_	_E-UTRA,c as defi	ined in clause 6	3.2B.4 for single	e carrier.		

Table 7.6B.2.1.5-2: Void

Table 7.6B.2.1.5-3: Void

## 7.6B.2.2 Inband blocking for intra-band non-contiguous EN-DC (2 CCs)

## 7.6B.2.2.1 Test Purpose

Same test purpose as in clause 7.6.2.1 in TS 38.521-1 [8] for the NR carrier.

#### 7.6B.2.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.6B.2.2.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.2.0.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.2.2.4 Test Description

Same test description as in clause 7.6.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

Table 7.6B.2.2.4-1: Test Configuration Table

Initial Con	nditions				
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes	High range with maxWGap				
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 1)				
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same  NRB_agg, only the combination with the highest NRB_SCG is tested.					

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1 except for the parameters specified in Table 7.6B.2.2.4-1.

For Initial conditions as in clause 7.6.2.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.

3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6.2.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6.2.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 3 of Test procedure as in clause 7.6.2.4.2 in TS 38.521-1 [8] shall treat the in-gap tests as below: For intra-band non-contiguous EN-DC of two sub-blocks with channel bandwidth larger than or equal to 5 MHz, the existing requirements apply for in-gap tests only if the corresponding interferer frequency offsets satisfy the following condition in relation to the sub-block gap size  $W_{\text{gap}}$ , so that the interferer frequency position does not change the nature of the core requirement tested:

$$W_{\text{gap}} \geq 2 \cdot |FInterferer \; (offset)| - BW_{Channel}$$

Step 4 of Test procedure as in clause 7.6.2.4.2 in TS 38.521-1 [8] is replaced by:

- 4. Set the downlink signal level for NR CC according to the Table 7.6.2.5-1 or 7.6.2.5-3 in TS 38.521-1 [8] as appropriate. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of (P<sub>CMAX\_L,c</sub> 29dB) for E-UTRA CC, and of 4dB below P<sub>CMAX\_L,c</sub> for NR CC for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].

## 7.6B.2.2.5 Test Requirement

Same test requirement as in clause 7.6.2.5 in TS 38.521-1 [8].

## 7.6B.2.3 Inband blocking for inter-band EN-DC within FR1 (1 NR CC)

#### 7.6B.2.3.1 Test Purpose

Same test purpose as in clause 7.6.2.1 in TS 38.521-1 [8] for the NR carrier.

#### 7.6B.2.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR DL CC.

#### 7.6B.2.3.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.2.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.2.3.4 Test Description

Same test description as in clause 7.6.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6.2.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6.2.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6.2.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

### 7.6B.2.3.5 Test Requirement

Same test requirement as in clause 7.6.2.5 in TS 38.521-1 [8].

#### 7.6B.2.3 1 Inband blocking for EN-DC within FR1 (>2 CCs)

#### 7.6B.2.3\_1.1 Inband blocking for EN-DC within FR1 (3 CCs)

#### 7.6B.2.3\_1.1.1 Test Purpose

For intra-band contiguous EN-DC within FR1 with 3 DL CCs: In-band blocking is defined for an unwanted interfering signal falling into the range from 15MHz below to 15MHz above the UE receive band, at which the relative throughput shall meet or exceed the requirement for the specified measurement channels. The lack of in-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

For inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs): Same test purpose as in clause 7.6A.2.1.1 in TS 38.521-1 [8].

#### 7.6B.2.3\_1.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC within FR1 with 3 DL CCs or inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs).

## 7.6B.2.3\_1.1.3 Minimum Conformance Requirements

For intra-band contiguous EN-DC within FR1 with 3 DL CCs: The minimum conformance requirements are defined in clause 7.6 B.2.0.1. Exception requirements for both NR and E-UTRA are defined and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

For inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs): The minimum conformance requirements are defined in clause 7.6B,2.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.2.3\_1.1.4 **Test Description**

#### 7.6B.2.3\_1.1.4.1 Intra-band contiguous EN-DC within FR1 with 3 DL CCs

#### 7.6B.2.3 1.1.4.1.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.2.3\_1.1.4.1.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

#### Table 7.6B.2.3\_1.1.4.1.1-1: Test configuration table

		Initial Co	onditions			
Test Environment	as specified in TS 38	.508-1 [6]	Normal			
clause 4.1						
Test Frequencies	as specified in		Mid range			
TS 38.508-1 [6] cla	ause 4.3.1 for differer	nt EN-DC				
bandwidth classes						
	width combination as		Lowest N <sub>RB_agg</sub> , H	ighest Nee aga		
	bandwidth combination	on sets supported	(NOTE 3)	-grioot i tikb_agg		
by the UE			,			
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-			Lowest			
1 [8]			L. C. C. C. C. C. C. C. C. C. C. C. C. C.			
			est Parameters			
	E-UTRA		EUTRA		IR .	
UL/DL	UL/DL	UL/DL	UL/DL	UL/DL	UL/DL	
Modulation	allocation	Modulation	allocation	Modulation	allocation	
QPSK/QPSK	REFSENS/Full RB	NA/QPSK	NA/Full RB	DFT-s-OFDM	REFSENS/Full RB	
				QPSK/CP-OFDM	(NOTE 1)	
QPSK QPSK						
NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2 of TS 38.521-1 [8].						

- NOTE 2: Test Channel Bandwidths are checked separately for each EN-DC band, which applicable channel bandwidths are specified in Table 5.3B.1.2-1.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same N<sub>RB\_agg</sub> , only the combination with the highest NRB\_SCG is tested.
- NOTE 4: REFSENS refers to Uplink configuration in Table 7.3.2.3-3 in [8] and Table 7.3.3-2 in [10] for NR and E-UTRA CC respectively.
- NOTE 5: In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.
  - 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.1 for SS diagram and clause A.3.2 for UE diagram.
  - 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
  - 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.

- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.2.3\_1.1.4.1.3.

#### 7.6B.2.3\_1.1.4.1.2 Test procedure

- 1. SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.2.3\_1.1.4.1.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.2.3\_1.1.4.1.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.6B.2.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.6B.2.1.5-1 +( [ $10\log(S_{LCRB}/N_{RB\_alloc})$ ] for NR CC, [ $10\log(P_{LCRB}/N_{RB\_alloc})$ ] for E-UTRA CC) for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the signal generator for an interfering signal below the aggregated component carriers in Case 1 according to Table 7.6B.2.1.5-1.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers in Case 1 at step 4.
- 7. Repeat steps from 4 to 6, using interfering signals in Case 2 at steps 4 and 6.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

## 7.6B.2.3\_1.1.4.1.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

## 7.6B.2.3\_1.1.4.2 Inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs)

Same test description as in clause 7.6A.2.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.2.1.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.2.1.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.2.1.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.2.3 1.1.5 Test Requirement

For intra-band contiguous EN-DC within FR1 with 3 DL CCs: Same test requirement as in clause 7.6B.2.1.5.

For inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs): Same test requirement as in clause 7.6A.2.1.5 in TS 38.521-1 [8].

#### 7.6B.2.3\_1.2 Inband blocking for EN-DC within FR1 (4 CCs)

#### 7.6B.2.3 1.2.1 Test Purpose

For intra-band contiguous EN-DC within FR1 with 4 DL CCs: In-band blocking is defined for an unwanted interfering signal falling into the range from 15MHz below to 15MHz above the UE receive band, at which the relative throughput shall meet or exceed the requirement for the specified measurement channels. The lack of in-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

For inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs): Same test purpose as in clause 7.6A.2.2.1 in TS 38.521-1 [8].

#### 7.6B.2.3 1.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC within FR1 with 4 DL CCs or inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs).

## 7.6B.2.3\_1.2.3 Minimum Conformance Requirements

For intra-band contiguous EN-DC within FR1 with 4 DL CCs: The minimum conformance requirements are defined in clause 7.6 B.2.0.1. Exception requirements for both NR and E-UTRA are defined and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

For inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs): The minimum conformance requirements are defined in clause 7.6B.2.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.2.3 1.2.4 Test Description

#### 7.6B.2.3\_1.2.4.1 Intra-band contiguous EN-DC within FR1 with 4 DL CCs

#### 7.6B.2.3 1.2.4.1.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

requirements.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.2.3\_1.2.4.1.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 7.6B.2.3\_1.2.4.1.1-1: Test configuration table

		Initial Co	maitions		
Test Environment	as specified in TS 38	3.508-1 [6]	Normal		
clause 4.1					
Test Frequencies			Mid range		
	ause 4.3.1 for differe	nt EN-DC			
bandwidth classes					
	width combination as		Lowest N <sub>RB_agg</sub> , Hig	nhest Nee and	
5.3B.1.2-1 across bandwidth combination sets supported			(NOTE 3)	grioot i titb_agg	
by the UE			Lowest		
	NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-				
1 [8]		ND/E UTD A T			
	E LIEDA		est Parameters		n .
	E-UTRA		nd SCC2 – EUTRA		R
UL/DL	UL/DL	UL/DL	UL/DL	UL/DL	UL/DL
Modulation	allocation	Modulation	allocation	Modulation	allocation
QPSK/QPSK	REFSENS/Full RB	NA/QPSK	NA/Full RB	DFT-s-OFDM	REFSENS/Full RB
QF3N/QF3N	KEFSENS/Full KB	NAVQESI	INA/FUILND	QPSK/CP-OFDM	(NOTE 1)
					(110121)
NOTE 1: Full RB	allocation shall be us	sed per each SCS a	nd channel RW as si	QPSK	,
	allocation shall be us	sed per each SCS a	nd channel BW as s	QPSK	,
TS 38.5	521-1 [8].	·		QPSK pecified in Table 7.3	.2.4.1-2 of
TS 38.5 NOTE 2: Test Ch	521-1 [8]. nannel Bandwidths ar	e checked separate		QPSK pecified in Table 7.3	.2.4.1-2 of
TS 38.5 NOTE 2: Test Ch bandwi	521-1 [8]. nannel Bandwidths ar dths are specified in '	e checked separate Table 5.3B.1.2-1.	ly for each EN-DC ba	QPSK pecified in Table 7.3 and, which applicable	.2.4.1-2 of e channel
TS 38.5 NOTE 2: Test Ch bandwi NOTE 3: If the U	521-1 [8]. nannel Bandwidths ar dths are specified in <sup>*</sup> E supports multiple C	e checked separate Table 5.3B.1.2-1. CC Combinations in	ly for each EN-DC b	QPSK pecified in Table 7.3 and, which applicable	.2.4.1-2 of e channel
TS 38.5 NOTE 2: Test Ch bandwi NOTE 3: If the U combin	521-1 [8]. nannel Bandwidths ar dths are specified in '	e checked separate Table 5.3B.1.2-1. CC Combinations in the NRB_SCG is tested	ly for each EN-DC bather the EN-DC Configurate.	QPSK pecified in Table 7.3 and, which applicabl ation with the same I	.2.4.1-2 of e channel N <sub>RB_agg</sub> , only the
TS 38.5 NOTE 2: Test Che bandwi NOTE 3: If the U combin NOTE 4: REFSE	521-1 [8]. nannel Bandwidths ar dths are specified in E supports multiple C ation with the highesi	e checked separate Table 5.3B.1.2-1. CC Combinations in the NRB_SCG is tested	ly for each EN-DC bather the EN-DC Configurate.	QPSK pecified in Table 7.3 and, which applicabl ation with the same I	.2.4.1-2 of e channel N <sub>RB_agg</sub> , only the
TS 38.5 NOTE 2: Test Che bandwi NOTE 3: If the U combin NOTE 4: REFSE UTRA	521-1 [8]. nannel Bandwidths ar dths are specified in E supports multiple C ation with the highest NS refers to Uplink c	e checked separate Table 5.3B.1.2-1. CC Combinations in a NRB_SCG is tester onfiguration in Table	ly for each EN-DC bathe EN-DC Configura d. e 7.3.2.3-3 in [8] and	QPSK pecified in Table 7.3 and, which applicabl ation with the same I Table 7.3.3-2 in [10]	.2.4.1-2 of e channel N <sub>RB_agg</sub> , only the

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.1 for SS diagram and clause A.3.2 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.2.3\_1.2.4.1.3.

#### 7.6B.2.3\_1.2.4.1.2 Test procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.2.3\_1.2.4.1.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.2.3\_1.2.4.1.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.6B.2.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.6B.2.1.5-1 +( [ $10\log(S_{LCRB}/N_{RB_alloc})$ ] for NR CC, [ $10\log(P_{LCRB}/N_{RB_alloc})$ ] for E-UTRA CC) for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the signal generator for an interfering signal below the aggregated component carriers in Case 1 according to Table 7.6B.2.1.5-1.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers in Case 1 at step 4.
- 7. Repeat steps from 4 to 6, using interfering signals in Case 2 at steps 4 and 6.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

#### 7.6B.2.3\_1.2.4.1.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

## 7.6B.2.3\_1.2.4.2 Iinter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs)

Same test description as in clause 7.6A.2.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.2.2.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.2.2.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.2.2.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.2.3\_1.2.5 Test Requirement

For intra-band contiguous EN-DC within FR1 with 4 DL CCs: Same test requirement as in clause 7.6B.2.1.5.

For inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs): Same test requirement as in clause 7.6A.2.2.5 in TS 38.521-1 [8].

# 7.6B.2.3\_1.3 Inband blocking for EN-DC within FR1 (5 CCs)

#### 7.6B.2.3 1.3.1 Test Purpose

Same test purpose as in clause 7.6B.2.3.1.

#### 7.6B.2.3\_1.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 16 and forward, supporting inter-band EN-DC within FR1 with 5 DL CCs (4 NR DL CCs).

#### 7.6B.2.3\_1.3.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.2.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.2.3\_1.3.4 Test Description

Same test description as in clause 7.6A.2.3.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.2.3.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.2.3.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.2.3.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 7.6B.2.3\_1.3.5 Test Requirement

Same test requirement as in clause 7.6A.2.3.5 in TS 38.521-1 [8].

# 7.6B.2.3\_1.4 Void

# 7.6B.2.3a In-band blocking for inter-band NE-DC within FR1 (2 CCs)

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 7.6.2 and 7.6A.2 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 7.6.1 and 7.6.1A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

#### 7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- Measurement uncertainty is FFS for power class 1 FR2b, 2 and 4.

#### 7.6B.2.4.1 Test Purpose

Same test purpose as in clause 7.6.2.1 in TS 38.521-2 [9] for the NR carrier.

#### 7.6B.2.4.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR DL CC.

#### 7.6B.2.4.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.2.0.4.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.2.4.4 Test Description

Same test description as in clause 7.6.2.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6.2.4.1 in TS 38.521-2 [9], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6.2.4.1 in TS  $38.521-2\ [9]$  is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6.2.4.1 in TS 38.521-2 [9] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

# 7.6B.2.4.5 Test Requirement

Same test requirement as in clause 7.6.2.5 in TS 38.521-2 [9].

# 7.6B.2.4\_1 Inband blocking for inter-band EN-DC including FR2 (>1 NR CC)

## 7.6B.2.4\_1.1 Inband blocking for inter-band EN-DC including FR2 (2 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 7.6A.2.1 in TS 38.521-2 is incomplete.

#### 7.6B.2.4\_1.1.1 Test Purpose

Same test purpose as in clause 7.6B.2.4.1.

#### 7.6B.2.4\_1.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 2NR DL CCs.

#### 7.6B.2.4 1.1.3 Minimum Conformance Requirements

Same minimum conformance requirements as in clause 7.4B.2.4.3

#### 7.6B.2.4\_1.1.4 Test Description

Same test description as in clause 7.6A.2.1.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.2.1.4.1 in TS 38.521-2 [9], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.2.1.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.2.1.4.1 in TS 38.521-2 [9] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.2.4\_1.1.5 Test Requirement

Same test requirement as in clause 7.6A.2.1.5 in TS 38.521-2 [9].

#### 7.6B.2.4 1.2 Inband blocking for inter-band EN-DC including FR2 (3 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 7.6A.2.2 in TS 38.521-2 is incomplete.

#### 7.6B.2.4\_1.2.1 Test Purpose

Same test purpose as in clause 7.6B.2.4.1.

## 7.6B.2.4\_1.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 3 NR DL CCs.

#### 7.6B.2.4\_1.2.3 Minimum Conformance Requirements

Same minimum conformance requirements as in clause 7.4B.2.4.3

#### 7.6B.2.4 1.2.4 Test Description

Same test description as in clause 7.6A.2.2.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.2.2.4.1 in TS 38.521-2 [9], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.2.2.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.2.2.4.1 in TS 38.521-2 [9] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.2.4\_1.2.5 Test Requirement

Same test requirement as in clause 7.6A.2.2.5 in TS 38.521-2 [9].

# 7.6B.2.4\_1.3 Inband blocking for inter-band EN-DC including FR2 (4 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

The referred test case 7.6A.2.3 in TS 38.521-2 is incomplete.

#### 7.6B.2.4 1.3.1 Test Purpose

Same test purpose as in clause 7.6B.2.4.1.

# 7.6B.2.4\_1.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 4 NR DL CCs.

#### 7.6B.2.4\_1.3.3 Minimum Conformance Requirements

Same minimum conformance requirements as in clause 7.4B.2.4.3

## 7.6B.2.4\_1.3.4 Test Description

Same test description as in clause 7.6A.2.3.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.2.3.4.1 in TS 38.521-2 [9], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.2.3.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.2.3.4.1 in TS 38.521-2 [9] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.2.4 1.3.5 Test Requirement

Same test requirement as in clause 7.6A.2.3.5 in TS 38.521-2 [9].

#### 7.6B.2.4\_1.4 Inband blocking for inter-band EN-DC including FR2 (5 NR CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

- The referred test case 7.6A.2.4 in TS 38.521-2 is incomplete.

## 7.6B.2.4\_1.4.1 Test Purpose

Same test purpose as in clause 7.6B.2.4.1.

#### 7.6B.2.4 1.4.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 5 NR DL CCs.

#### 7.6B.2.4\_1.4.3 Minimum Conformance Requirements

Same minimum conformance requirements as in clause 7.4B.2.4.3

## 7.6B.2.4\_1.4.4 Test Description

Same test description as in clause 7.6A.2.4.4 in TS 38.521-2 [9] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.2.4.4.1 in TS 38.521-2 [9], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.2.4.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.2.4.4.1 in TS 38.521-2 [9] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.2.4\_1.4.5 Test Requirement

Same test requirement as in clause 7.6A.2.4.5 in TS 38.521-2 [9].

# 7.6B.2.4D Inband blocking for inter-band EN-DC including FR2 for UL MIMO

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach can be applied and only NR carriers need to be tested.

No test case details are specified. Given UE's Rx performance would not be impacted by the Tx configuration in NR FR2 TDD bands, the requirements in this test case can be well covered in clauses 7.6B.2.4 and 7.6B.2.4\_1, and don't need to be tested again.

# 7.6B.2.5 Inband blocking for inter-band EN-DC including both FR1 and FR2

#### 7.6B.2.5.1 Test purpose

Same test purpose as in clause 7.6.2.1 in TS 38.521-1 [8] for NR FR1 carrier and clause 7.6.2.1 in TS 38.521-2 [9] for NR FR2 carrier.

#### 7.6B.2.5.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for Inband blocking apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 7.6B.2.

# 7.6B.2.5D Inband blocking for inter-band EN-DC including FR1 and FR2 for UL MIMO

#### 7.6B.2.5D.1 Test purpose

Same test purpose as in clause 7.6D.2 in TS 38.521-1 [8] for NR FR1 carrier and clause 7.6D in TS 38.521-2 [9] for NR FR2 carrier.

#### 7.6B.2.5D.2 Test applicability

The requirements in this test are not testable due to issues with combined testing of NR FR1 and E-UTRA in conducted mode with NR FR2 in radiated mode. Therefore, the conducted and radiated requirements are tested separately.

No test case details are specified. The EN-DC requirements for Inband blocking apply and are tested as part of the EN-DC within FR1 and EN-DC including FR2 test cases in clause 7.6B.2.

# 7.6B.3 Out-of-band blocking for DC

#### 7.6B.3.0 Minimum Conformance Requirements

# 7.6B.3.0.1 Intra-band contiguous EN-DC

Intra-band contiguous EN-DC out-of-band requirement and parameters are defined in Table 7.6B.3.0.1-1.

Table 7.6B.3.0.1-1: Out-of-band blocking for intra-band contiguous EN-DC

EN-DC Aggregated Bandwidth, MHz		≤100	>100, ≤120	>120, ≤140	>140, ≤160	
Pw ii	n Transmission	REFSENS	S + Aggregated	BW specific va	alue below	
Bandwi	dth Configuration,			<u> </u>		
p	erCC, dBm		`	9		
NOTE 1:	Interferer values and					
	TS 36.101 [5]. For int	er-band comb	inations where	the intra-band		
requirements are applicable, in which the E-UTRA band is a subset of an						
	NR-only band, the NF	R band interfe	rer values and	offsets specifie	ed from	
	Table 7.6A.3-2 in TS	38.101-1 [2] a	apply to both E-	UTRA and NR	carriers.	
NOTE 2:	For NR carrier, the tra	ansmitter shal	I be set to 4dB	below PCMAX_L,	f,c,NR at the	
	minimum uplink confi	guration spec	ified in Table 7.	.3.2-3 [2] with F	CMAX L,f,c,NR	
	as defined in clause 6.2B.4.					
NOTE 3:	B: For E-UTRA carrier, the transmitter shall be set to 29dB below Pcmax L E-					
	UTRA.c at the minimum	n uplink configuration specified in Table 7.3.1-2 [5] with				
	P <sub>CMAX_L_E</sub> -utra,c as de				[-]	

For Table 7.6.2.1A-2 from TS 36.101 [4] in frequency range 1, 2 and 3, up to  $\max(24,6 \cdot \lceil N_{RB} \cdot /6 \rceil)$  exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz step size. For these exceptions the requirements of subclause 7.7B.1 Spurious response are applicable.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.3.1.

# 7.6B.3.0.2 Intra-band non-contiguous EN-DC

For the E-UTRA sub-block containing one or multiple CC's, the requirement is defined in clause 7.6.2.1 for single carrier operation and in clause 7.6.2.1A for CA in TS 36.101 [5].

For the NR sub-block, the requirement is defined in clause 7.6.3 in TS 38.101-1 [2].

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.3.2.

#### 7.6B.3.0.3 Inter-band EN-DC within FR1

Out-of-band blocking requirements for E-UTRA single carrier and CA operation specified in clauses 7.6.2.1 and 7.6.2.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.3 and 7.6A.3 of TS 38.101-1 [2] apply for lowest level EN-DC fallbacks (two bands) in clause 5.5B.4.1 with following conditions:

- one E-UTRA uplink carrier with the output power set to 4dB below P<sub>CMAX\_L,c</sub> and the NR band whose downlink is being tested has its uplink carrier output power set to 29 dB below P<sub>CMAX\_L,f,c</sub>.
- one NR uplink carrier with the output power set to 4dB below  $P_{CMAX\_L,f,c}$  on the NR band with both E-UTRA and NR downlinks being tested with E-UTRA output power set to 29 dB below  $P_{CMAX\_L,c}$ .

If CW interferer falls in a gap between  $F_{DL\_high}$  of the E-UTRA or NR band and  $F_{DL\_low}$  of the NR or EUTRA band, where the corresponding OOB ranges 1 and 2 overlap, then the lower level interferer limit of the overlapping OOB ranges applies.

If  $F_{DL\_high}$  of the lower E-UTRA or NR band is greater than or equal to the  $F_{DL\_low}$  of the upper NR or E-UTRA band as in overlapping RX frequency ranges, then the OOB range shall start from the  $F_{DL\_low}$  of the lower E-UTRA or NR band, and from the  $F_{DL\_high}$  of the upper NR or E-UTRA band.

For EN-DC combination listed in Table 7.6B.3.0.3-1 under the first test condition above, exceptions to the requirement specified in Table 7.6B.3.0.3-2 are allowed when the second order intermodulation product of the lower frequency band UL carrier and the CW interfering signal fully or partially overlaps with the higher frequency band DL carrier.

Table 7.6B.3.0.3-1: EN-DC combination with exceptions allowed

EN-DC combination
DC_5_n78
DC_8_n77
DC_8_n78
DC_11_n77
DC_18_n77
DC_18_n78
DC_18_n79
DC_19_n77
DC_19_n78
DC_19_n79
DC_20_n78
DC_21_n77
DC_26_n77
DC_26_n78
DC_26_n79
DC_28_n77
DC_28_n78
DC_28_n79

Table 7.6B.3.0.3-2: Exceptions allowed

Parameter	Unit	Level
P <sub>Interferer</sub> (CW)	dBm	-44 <sup>1</sup>

NOTE 1: The requirement applies when  $\left|f_{Interferer} \pm f_{UL}^{LB} - f_{DL}^{HB}\right| \le (BW_{UL}^{LB} + BW_{DL}^{HB})/2$ , where  $f_{UL}^{LB}$  and  $f_{DL}^{HB}$  are the carrier frequencies for lower frequency band UL and higher frequency band DL, respectively.  $BW_{UL}^{LB}$  and  $BW_{DL}^{HB}$  are the channel bandwidths configured for lower frequency band UL carrier and higher frequency band DL carrier in MHz, respectively.

For each of the two test cases in clauses 7.6.2.1 and 7.6.2.1A of [5] and for NR single carrier and CA operation specified in clauses 7.6.3 and 7.6A.3 of TS 38.101-1 [2] for all interferer frequency ranges a maximum of

$$\left[ \max \left\{ 24, 6 \cdot \left\lceil n \cdot N_{RB} \right| / 6 \right\rceil \right] / \min \left\{ \left[ n \cdot N_{RB} \right| / 10 \right] , 5 \right\} \right]$$

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.3.3.

#### 7.6B.3.0.3a Inter-band NE-DC within FR1

Out-of-band blocking requirements for E-UTRA single carrier and CA operation specified in clauses 7.6.2.1 and 7.6.2.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.3 and 7.6A.3 of TS 38.101-1 [2] apply for lowest level NE-DC fallbacks (two bands) in clause 5.5B.4a.1 with following conditions:

- one E-UTRA uplink carrier with the output power set to 4 dB below P<sub>CMAX\_L,c</sub> and the NR band whose downlink is being tested has its uplink carrier output power set to 29 dB below P<sub>CMAX\_L,f,c</sub>.
- one NR uplink carrier with the output power set to 4 dB below  $P_{CMAX\_L,f,c}$  on the NR band with both E-UTRA and NR downlinks being tested with E-UTRA output power set to 29 dB below  $P_{CMAX\_L,c}$ .

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.3.3a.

#### 7.6B.3.0.4 Inter-band EN-DC including FR2

Out-of-band blocking requirements specified for E-UTRA single carrier and CA operation specified in clauses 7.6.2.1 and 7.6.2.1A of TS 36.101 [5] apply for lowest level EN-DC fallbacks (two bands) in clause 5.5B.5.1 with only E-UTRA UL with output power as in TS 36.101 [5] (4dB below  $P_{CMAX\_L}$ ).

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.3.4.

# 7.6B.3.0.5 Inter-band EN-DC including both FR1 and FR2

Out-of-band blocking requirements specified for E-UTRA single carrier and CA operation specified in clauses 7.6.2.1 and 7.6.2.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.3 and 7.6A.3 of TS 38.101-1 [2] apply for lowest level EN-DC fallbacks (three bands) in clause 5.5B.6.2 with only E-UTRA UL with output power as in TS 36.101 [5] (4dB below  $P_{\text{CMAX L}}$ ).

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.3.5.

#### 7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC (2 CCs)

#### 7.6B.3.1.1 Test Purpose

Out-of-band band blocking is defined for an unwanted CW interfering signal falling more than 15 MHz below or above the UE receive band, at which a given average throughput shall meet or exceed the requirement for the specified measurement channels.

For the first 15 MHz below or above the UE receive band the appropriate in-band blocking or adjacent channel selectivity in clause 7.6B.2.1 and clause 7.5B.1 shall be applied.

The lack of out-of-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

#### 7.6B.3.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.6B.3.1.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.3.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.6B.3.1.4 Test Description

#### 7.6B.3.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.3.1.4.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

#### Table 7.6B.3.1.4.1-1: Test configuration table

Initial Conditions							
Test Environment as specified in TS 38.508-1 [6] clause 4.1	Normal						
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different ENDC bandwidth classes	Mid range						
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 3)						
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]	Lowest						
NR/E-UTRA Test Parameters							

#### **Downlink Configuration Uplink Configuration** NR E-UTRA NR E-UTRA E-UTRA NR RB E-UTRA NR RB Modulation Modulation allocation Modulation RB allocation RB Modulation allocation allocation DFT-s-CP-OFDM Full RB REFSEN\_LTE **QPSK** Full RB OFDM REFSENS\_NR **QPSK QPSK** (NOTE 1) S

NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2 of TS 38.521-1 [8].

**QPSK** 

- NOTE 2: Test Channel Bandwidths are checked separately for each EN-DC band, which applicable channel bandwidths are specified in Table 5.3B.1.2-1.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same  $N_{RB\_agg}$ , only the combination with the highest  $N_{RB\_SCG}$  is tested.
- NOTE 4: REFSENS \_NR and REFSENS\_LTE refers to Uplink configuration in Table 7.3.2.4.1-3 in 38.521-1 [8] and Table 7.3.4.1-1 in 36.521 [10] for NR and E-UTRA CC respectively.
- NOTE 5: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.
- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.2 for SS diagram and clause A.3.2 for UE diagram.
- 2. The parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.3.1.4.3.

#### 7.6B.3.1.4.2 Test procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.3.1.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.3.1.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.6B.3.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power

measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink) power control window size) dB of the target power level in Table 7.6B.3.1.5-1 for at least the duration of the Throughput measurement, where:

- MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
- For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
- For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal below the aggregated component carriers according to Table 7.6B.3.1.5-1. The frequency step size is 1MHz.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2 in TS 38.521-1 [8] for NR band, and Annex G.2 of TS 36.521-1 [10] for EUTRA band.
- 6. Record the frequencies for which the throughput doesn't meet the requirements.
- 7. Repeat steps from 4 to 6, using an interfering signal above the aggregated component carriers at step 4.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

#### 7.6B.3.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

#### 7.6B.3.1.5 Test Requirement

Except for the spurious response frequencies recorded in step 6 of test procedure, the throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively with parameters specified in Table 7.6B.3.1.5-1 for the specified wanted signal mean power in the presence of interfering signals.

The number of spurious response frequencies recorded in step 6 of test procedure shall not exceed  $\max(24,6 \cdot \lceil N_{RB} \cdot /6 \rceil)$  exceptions in each assigned frequency channel when measured using a 1MHz step size. For these exceptions the requirements of clause 7.7B Spurious Response are applicable.

Table 7.6B.3.1.5-1: Out-of-band blocking for intra-band contiguous EN-DC

EN-DC Aggregated Bandwidth, MHz	≤100	>100, ≤120	>120, ≤140	>140, ≤160	
Pw in Transmission	REFSENS	S + Aggregated	BW specific va	alue below	
Bandwidth Configuration, perCC, dBm		,	9		
NOTE 1: Interferer values and offsets are specified from Table 7.6.2.1A-2 in TS 36.101 [5]. For inter-band combinations where the intra-band requirements are applicable, in which the E-UTRA band is a subset of an NR-only band, the NR band interferer values and offsets specified from Table 7.6A.3-2 in TS 38.101-1 [2] apply to both E-UTRA and NR carriers.  NOTE 2: For NR carrier, the transmitter shall be set to 4dB below PCMAX_L,f,c,NR at the minimum uplink configuration specified in Table 7.3.2-3 in TS 8.101-1 [2] w PCMAX_L,f,c,NR as defined in clause 6.2B.4.  NOTE 3: For E-UTRA carrier, the transmitter shall be set to 29dB below PCMAX_L,E-UTRA,c at the minimum uplink configuration specified in Table 7.3.1-2in TS 36.101 [5] with PCMAX_L,E-UTRA,c as defined in clause 6.2B.4 for single					

Table 7.6B.3.1.5-2: Void

Table 7.6B.3.1.5-3: Void

# 7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC (2 CCs)

# 7.6B.3.2.1 Test Purpose

Same test purpose as in clause 7.6.3.1 in TS 38.521-1 [8] for the NR carrier.

# 7.6B.3.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.6B.3.2.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.3.0.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.3.2.4 Test Description

Same test description as in clause 7.6.3.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

Table 7.6B.3.2.4-1: Test Configuration Table

Initial Conditions								
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes  High range with maxWGap								
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 1)							
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB agg , only the combination with the highest NRB SCG is tested.								

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1 except for the parameters specified in Table 7.6B.3.2.4-1.

For Initial conditions as in clause 7.6.3.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.

3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6.3.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6.3.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 4 of Test procedure as in clause 7.6.3.4.2 in TS 38.521-1 [8] is replaced by:

- 4. Set the downlink signal level for NR CC according to the Table 7.6.3.5-1 or 7.6.3.5-3 in TS 38.521-1 [8] as appropriate. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of (P<sub>CMAX\_L,c</sub> 29dB) for E-UTRA CC, and of 4dB below P<sub>CMAX\_L,c</sub> for NR CC for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].

#### 7.6B.3.2.5 Test Requirement

Same test requirement as in clause 7.6.3.5 in TS 38.521-1 [8].

# 7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)

#### 7.6B.3.3.1 Test Purpose

Out-of-band band blocking is defined for an unwanted CW interfering signal falling more than 15 MHz or 3\*CBW below or above the UE receive band, at which a given average throughput shall meet or exceed the requirement for the specified measurement channels.

For the first 15 MHz or 3\*CBW below or above the UE receive band the appropriate in-band blocking or adjacent channel selectivity in clause 7.6B.2.3 and clause 7.5B.3 shall be applied.

The lack of out-of-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

#### 7.6B.3.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 2 DL CCs.

# 7.6B.3.3.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.3.0.3.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

7.6B.3.3.4 Test Description

#### 7.6B.3.3.4.1 Initial Conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, DC configuration specified in clause 5.5B.4 and test channel bandwidths specified in TS 36.508 [11] clause 4.3.1 and TS 38.508-1 [6] clause 4.3.1, and sub-carrier spacing based on NR operating bands specified in TS 38.521-1 [8] clause 5.3. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration, and are shown in Table 7.6B.3.3.4.1-1. The details of the uplink and downlink reference measurement channels (RMCs) and OCNG patterns are specified in TS 36.521-1 [10] Annexe A for E-UTRA, and TS 38.521-1 [8] Annex A for NR. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C and in TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively.

#### Table 7.6B.3.3.4.1-1: Test configuration table

	Initial Conditions								
		·" · · <b>TO</b> o							
	•	ecified in TS 38	8.508-	Normal					
1 [6] clause 4									
		specified in T	S 38.508-	_	E-UTRA and	l Mid range for	NR (NOTE		
1 [6] clause4.				3)					
		es as specified	d in						
TS 36.508-1 [									
		vidths as speci	fied in	Highest for E-	-UTRA and H	lighest for NR			
TS 38.508-1 [									
		Bandwidths as	specified						
in TS 36.508									
	as specifie	ed in TS 38.50	8-1 [6]	Lowest					
Table 5.3.5-1									
			Test P	arameters					
Do	ownlink Co	onfiguration		Uplink Configuration					
E-UTRA	Cell	NR C	ell	E-UTRA Cell NR Cell			ell		
Modulation	RB allocation	Modulation	RB allocation	Modulation	RB allocation	Modulation	RB allocation		
		CP-OFDM				DFT-s-			
QPSK	NOTE 1	OPSK	NOTE 1	QPSK	NOTE 1	OFDM	NOTE 1		
		אל וא				QPSK			
	NOTE 1: The specific configuration of uplink and downlink are defined in Table 7.3B.2.3.4.2.1-1.								
NOTE 2: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only									
with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table									
7.3	7.3.2.5-2) is used in the test requirements.								
NOTE 3: For	r NR band	n28, 30MHz te	est channel	bandwidth is to	ested with Lov	w range test fre	equency.		

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.2 for SS diagram and clause A.3.2 for UE diagram.
- 2. The parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.3.3.4.3.

#### 7.6B.3.3.4.2 Test procedure

- 1. SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.3.3.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.3.3.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.6B.3.3.5-1, Table 7.6B.3.3.5-3, or Table 7.6B.3.3.5-5 for E-UTRA CC and NR CC respectively. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of (P<sub>CMAX\_L,c</sub> 4dB) for E-UTRA CC, and of 29 dB below P<sub>CMAX\_L,f,c</sub> for NR CC for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal below the aggregated component carriers according to Table 7.6B.3.3.5-4 or Table 7.6B.3.3.5-6. The frequency step size is  $_{\min(|CBW|/2|5)}$  MHz.

If CW interferer falls in a gap between  $F_{DL\_high}$  of the E-UTRA or NR band and  $F_{DL\_low}$  of the NR or EUTRA band, where the corresponding OOB ranges 1 and 2 in Table 7.6B.3.3.5-2 and Table 7.6B.3.3.5-4 or Table 7.6B.3.3.5-6 overlap, then the lower level interferer limit of the overlapping OOB ranges applies. CW interferer is eliminated from  $F_{DL\_low}$ -15MHz to  $F_{DL\_high}$ + 15MHz of E-UTRA carrier.

If  $F_{DL\_high}$  of the lower E-UTRA or NR band is greater than or equal to the  $F_{DL\_low}$  of the upper NR or E-UTRA band as in overlapping RX frequency ranges, then the OOB range shall start from the  $F_{DL\_low}$  of the lower E-UTRA or NR band, and from the  $F_{DL\_high}$  of the upper NR or E-UTRA band.

For EN-DC combination listed in Table 7.6B.3.3.5-7, exceptions to the requirement specified in Table 7.6B.3.3.5-8 are allowed when the second order intermodulation product of the lower frequency band UL carrier and the CW interfering signal fully or partially overlaps with the higher frequency band DL carrier.

- 5. Measure the average throughput of NR CC for a duration sufficient to achieve statistical significance according to Annex H.2. Record the frequencies for which the throughput doesn't meet the requirements.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers at step 4.
- 7. Set the Downlink signal level to the value as defined in Table 7.6B.3.3.5-1, Table 7.6B.3.3.5-3, or Table 7.6B.3.3.5-5 for E-UTRA CC and NR CC respectively. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of ( $P_{CMAX\_L,f,c}$  4dB) for NR CC, and of 29 dB below  $P_{CMAX\_L,c}$  for E-UTRA CC for at least the duration of the Throughput measurement, where:

- MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
- For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
- For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 8. Set the parameters of the CW signal generator for an interfering signal below the aggregated component carriers according to Table 7.6B.3.3.5-2, Table 7.6B.3.3.5-4 or Table 7.6B.3.3.5-6 for E-UTRA CC and NR CC testing respectively. The frequency step size is  $_{\min(\ |CBW| / 2 \mid 5)}$  MHz.

If CW interferer falls in a gap between  $F_{DL\_high}$  of the E-UTRA or NR band and  $F_{DL\_low}$  of the NR or EUTRA band, where the corresponding OOB ranges 1 and 2 in Table 7.6B.3.3.5-2 and Table 7.6B.3.3.5-4 or Table 7.6B.3.3.5-6 overlap, then the lower level interferer limit of the overlapping OOB ranges applies. CW interferer is eliminated from  $F_{DL\_low}$  -15MHz to  $F_{DL\_high}$  + 15MHz of E-UTRA and NR carriers.

If  $F_{DL\_high}$  of the lower E-UTRA or NR band is greater than or equal to the  $F_{DL\_low}$  of the upper NR or E-UTRA band as in overlapping RX frequency ranges, then the OOB range shall start from the  $F_{DL\_low}$  of the lower E-UTRA or NR band, and from the  $F_{DL\_high}$  of the upper NR or E-UTRA band.

- 9. Measure the average throughput of E-UTRA CC and NR CC respectively for a duration sufficient to achieve statistical significance according to Annex H.2. Record the frequencies for which the throughput doesn't meet the requirements.
- 10. Repeat steps from 8 to 9, using an interfering signal above the aggregated component carriers at step 8.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

## 7.6B.3.3.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.

#### 7.6B.3.3.5 Test Requirement

For E-UTRA bands, except for the spurious response frequencies recorded in test procedure, the throughput measurement derived in test procedure shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 of TS 36.521-1 [10] with parameters specified in Tables 7.6B.3.3.5-1 and 7.6B.3.3.5-2.

For NR bands with  $F_{DL\_high}$  < 2700 MHz and  $F_{UL\_high}$  < 2700 MHz, except for the spurious response frequencies recorded in test procedure, the throughput measurement derived in test procedure shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 and A.3.3 of TS 38.521-1 [8] with parameters specified in Tables 7.6B.3.3.5-3 and 7.6B.3.3.5-4.

For NR bands with  $F_{DL\_low} \ge 3300$  MHz and  $F_{UL\_low} \ge 3300$  MHz, except for the spurious response frequencies recorded in test procedure, the throughput measurement derived in test procedure shall be  $\ge 95\%$  of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 and A.3.3 of TS 38.521-1 [8] with parameters specified in Tables 7.6B.3.3.5-5 and 7.6B.3.3.5-6.

If CW interferer falls in a gap between  $F_{DL\_high}$  of the E-UTRA or NR band and  $F_{DL\_low}$  of the NR or EUTRA band, where the corresponding OOB ranges 1 and 2 in Table 7.6B.3.3.5-2 and Table 7.6B.3.3.5-4 or Table 7.6B.3.3.5-6 overlap, then the lower level interferer limit of the overlapping OOB ranges applies.

If  $F_{DL\_high}$  of the lower E-UTRA or NR band is greater than or equal to the  $F_{DL\_low}$  of the upper NR or E-UTRA band as in overlapping RX frequency ranges, then the OOB range shall start from the  $F_{DL\_low}$  of the lower E-UTRA or NR band, and from the  $F_{DL\_high}$  of the upper NR or E-UTRA band.

For EN-DC combination listed in Table 7.6B.3.3.5-7 under the first test condition above, exceptions to the requirement specified in Table 7.6B.3.3.5-8 are allowed when the second order intermodulation product of the lower frequency band UL carrier and the CW interfering signal fully or partially overlaps with the higher frequency band DL carrier.

For all interferer frequency ranges a maximum of

$$\left[\max \left\{24, 6 \cdot \left\lceil n \cdot N_{RB} \right| / 6 \right]\right] / \min \left\{\left\lceil n \cdot N_{RB} \right\rceil / 10 \right\rfloor 5 \right\} \right]$$

Table 7.6B.3.3.5-1: Out-of-band blocking parameters for E-UTRA bands

Rx P	arameter	Units	ts Channel bandwidth					
			1.4	3 MHz	5 MHz	10	15	20
			MHz			MHz	MHz	MHz
Po	wer in		REFS	ENS + ch	annel ban	dwidth sp	ecific valu	e below
	Transmission							
Bar	ndwidth	dBm	6	6	6	6	7	9
Conf	Configuration							
Note 1:	The reference	e measure	ment cha	annel is sp	ecified in	Annex A.:	3.2 of TS 3	36.521-
1 [10] with one sided dynamic OCNG Pattern OP.1 FDD/TDD as described in					bed in			
Annex A.5.1.1/A.5.2.1 of TS 36.521-1 [10].								
Note 2:	The REFSENS power level is specified in Table 7.3.3-1 of TS 36.521-1 [10] for							

Table 7.6B.3.3.5-2: Out of band blocking for E-UTRA bands

two and four antenna ports, respectively.

E-UTRA band	Parameter	Units	Frequency					
			range 1	range 2	range 3	range 4		
	PInterferer	dBm	-44	-30	-15	-15		
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,			F <sub>DL_low</sub> -15 to F <sub>DL_low</sub> -60	F <sub>DL_low</sub> -60 to F <sub>DL_low</sub> -85	F <sub>DL_low</sub> -85 to 1 MHz	-		
12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 (Note 3), 43 (Note 3), 44, 45, 53, 65, 66, 68, 70, 71, 72, 73, 74	Finterferer (CW)	MHz	FDL_high +15 to FDL_high +60	FDL_high +60 to FDL_high +85	F <sub>DL_high</sub> +85 to +12750 MHz	_		
2, 5, 12, 17	Finterferer	MHz	-	-	-	Ful_low - Ful_high		

Note 1: Range 3 shall be tested only with the highest channel bandwidth.

Note 2: For the UE which supports both Band 11 and Band 21 the out of blocking is FFS.

Note 3: The power level of the interferer (P<sub>Interferer</sub>) for Range 3 shall be modified to -20 dBm for F<sub>Interferer</sub> > 2800 MHz and F<sub>Interferer</sub> < 4400 MHz.

Note 4: For the UE that supports both Band 4 and Band 66, the out-of-blocking frequency range for Band 4 is defined relative to F<sub>DL\_low</sub> and F<sub>DL\_high</sub> of Band 66.

Table 7.6B.3.3.5-3: Out-of-band blocking parameters for NR bands with  $F_{DL\_high}$  < 2700 MHz and  $F_{UL\_high}$  < 2700 MHz

DV naramatar	Units	Channel bandwidth					
RX parameter	Ullits	5 MHz	10 MHz	15 MHz	20 MHz	25 MHz	
Power in	dBm	R	EFSENS + char	nel bandwidth specific value below			
transmission bandwidth configuration	dB	6	6	7	9	10	
DV noremeter	Units		th				
RX parameter	Ullits	30 MHz	40 MHz	50 MHz	60 MHz	80 MHz	
Power in	dBm	R	EFSENS + char	nel bandwidth specific value below			
transmission bandwidth configuration	dB	11	12	13	14	15	
BV narameter	Units		С	hannel bandwid	th		
RX parameter	Ullits	90 MHz	100 MHz				
Power in transmission bandwidth	dBm	REFSENS + channel bandwidth specific value below					
configuration	dB	15.5	16				
	ansmitter sh 521-1 [8].	all be at the mir	imum UL configi	uration specified	in Table 7.3.2.3-	3 of	

Table 7.6B.3.3.5-4: Out of-band blocking for NR bands with  $F_{DL\_high}$  < 2700 MHz and  $F_{UL\_high}$  < 2700 MHz

NR band	Parameter	Unit	Range 1	Range 2	Range 3
n1, n2, n3,	Pinterferer	dBm	-44	-30	-15
n5, n7, n8,	Finterferer (CW)	MHz			
n12, n20,					
n25, n28,					
n34, n38,			-60 < f - F <sub>DL low</sub> < -15	$-85 < f - F_{DL_{low}} \le -60$	$1 \le f \le F_{DL\_low} - 85$
n39, n40,			or		or
n41, n50,			$15 < f - F_{DL\_high} < 60$	or $60 \le f - F_{DL\_high} < 85$	F <sub>DL_high</sub> + 85 ≤ f
n51, n65,			15 < 1 - FDL_high < 60	00 ≤ I — FDL_high < 03	≤ 12750
n66, n70,					
n71, n74,					
n75, n76					
-, -	a a payer layed of the	o interfer	or (D ) for Dongs 2	shall be madified to 20 a	dDm for C

NOTE 1: The power level of the interferer (P<sub>Interferer</sub>) for Range 3 shall be modified to -20 dBm for F<sub>Interferer</sub> > 6000 MHz.

NOTE 2: For band 51 the F<sub>DL\_high</sub> of band 50 is applied as F<sub>DL\_high</sub> for band 51. For band 50, the F<sub>DL\_low</sub> of band 51 is applied as F<sub>DL\_low</sub> for band 50.

NOTE 3: For band 76 the F<sub>DL\_high</sub> of band 75 is applied as F<sub>DL\_high</sub> for band 76. For band 75, the F<sub>DL\_low</sub> of band 76 is applied as F<sub>DL\_low</sub> for band 75.

NOTE 4: For UEs supporting both bands 38 and 41, the  $F_{DL\_high}$  and  $F_{DL\_low}$  of band 41 is applied as  $F_{DL\_high}$  and  $F_{DL\_low}$  for band 38.

Table 7.6B.3.3.5-5: Out-of-band blocking parameters for NR bands with F<sub>DL\_low</sub> ≥ 3300 MHz and F<sub>UL\_low</sub> > 3300 MHz

RX parameter	Units	Channel bandwidth						
		10 MHz	15 MHz	20 MHz	40 MHz	50 MHz		
Power in	dBm	R	EFSENS + chan	nel bandwidth sp	ecific value belo	)W		
transmission bandwidth configuration	dB	6	7	9	9	9		
RX parameter	Units	Channel bandwidth						
		60 MHz	80 MHz	90 MHz	100 MHz			
Power in	dBm	REFSENS	3 + channel band	dwidth specific va	alue below			
transmission bandwidth configuration	dB	9	9	9	9			
NOTE: The transmitter shall be at the minimum UL configuration specified in Table 7.3.2.3-3 of TS 38.521-1 [8].								

Table 7.6B.3.3.5-6: Out of-band blocking for NR bands with F<sub>DL\_low</sub> ≥ 3300 MHz and F<sub>UL\_low</sub> ≥ 3300 MHz

NR band	Parameter	Unit	Range1	Range 2	Range 3
n77, n78	Pinterferer	dBm	-44	-30	-15
(NOTE 3)	Finterferer (CW)	MHz	$-60 < f - F_{DL\_low} \le$ $-3CBW$ or $3CBW \le f - F_{DL\_high} <$ $60$	$\begin{array}{l} -200 < f - F_{DL\_low} \leq \\ -MAX(60,3CBW) \\ or \\ MAX(60,3CBW) \leq f - \\ F_{DL\_high} < 200 \end{array}$	$1 \le f \le F_{DL\_low} - MAX(200,3CBW)$ or $F_{DL\_high}$ + MAX(200,3CBW) $\le f \le 12750$
n79 (NOTE 4)	Finterferer (CW)	MHz	N/A	$ \begin{array}{l} -150 < f - F_{DL\_low} \leq \\ -MAX(60,3CBW) \\ \text{or} \\ MAX(60,3CBW) \leq f - \\ F_{DL\_high} < 150 \end{array} $	$\begin{array}{l} 1 \leq f \leq F_{DL\_low} - \\ MAX(150,3CBW) \\ or \\ F_{DL\_high} \\ + MAX(150,3CBW) \\ \leq f \leq 12750 \end{array}$

- NOTE 1: The power level of the interferer (P<sub>Interferer</sub>) for Range 3 shall be modified to -20 dBm for F<sub>Interferer</sub> > 6000 MHz.
- NOTE 2: CBW denotes the channel bandwidth of the wanted signal
- NOTE 3: The power level of the interferer (P<sub>Interferer</sub>) for Range 3 shall be modified to -20 dBm, for F<sub>Interferer</sub> > 2700 MHz and F<sub>Interferer</sub> < 4800 MHz. For CBW > 15 MHz, the requirement for Range 1 is not applicable and Range 2 applies from the frequency offset of 3CBW from the band edge. For CBW larger than 60 MHz, the requirement for Range 2 is not applicable and Range 3 applies from the frequency offset of 3CBW from the band edge.
- NOTE 4: The power level of the interferer (P<sub>Interferer</sub>) for Range 3 shall be modified to -20 dBm, for F<sub>Interferer</sub> > 3650 MHz and F<sub>Interferer</sub> < 5750 MHz. For CBW ≥ 40 MHz, the requirement for Range 2 is not applicable and Range 3 applies from the frequency offset of 3CBW from the band edge.

Table 7.6B.3.3.5-7: EN-DC combination with exceptions allowed

EN-DC combination
DC_5_n78
DC_8_n77
DC_8_n78
DC_11_n77
DC_18_n77
DC_18_n78
DC_18_n79
DC_19_n77
DC_19_n78
DC_19_n79
DC_20_n78
DC_21_n77
DC_26_n77
DC_26_n78
DC_26_n79
DC_28_n77
DC_28_n78
DC_28_n79

#### Table 7.6B.3.3.5-8: Exceptions allowed

Parameter	Unit	Level
P <sub>Interferer</sub> (CW)	dBm	-44 <sup>1</sup>
where f# and f# ar higher frequency ba	blies when fractifier ± file - file the carrier frequencies for lower and DL, respectively. BW and B ed for lower frequency band UL of Hz, respectively.	er frequency band UL and  ### are the channel

# 7.6B.3.3\_1 Out-of-band blocking for EN-DC within FR1 (>2 CCs)

# 7.6B.3.3\_1.1 Out-of-band blocking for EN-DC within FR1 (3 CCs)

#### 7.6B.3.3\_1.1.1 Test Purpose

Out-of-band band blocking is defined for an unwanted CW interfering signal falling more than 15 MHz below or above the UE receive band, at which a given average throughput shall meet or exceed the requirement for the specified measurement channels.

For the first 15 MHz below or above the UE receive band the appropriate in-band blocking or adjacent channel selectivity in clause 7.6B.2.1 and clause 7.5B.1 shall be applied.

The lack of out-of-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

#### 7.6B.3.3 1.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC within FR1 with 3 DL CCs.

# 7.6B.3.3\_1.1.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.3.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.6B.3.3\_1.1.4 Test Description

#### 7.6B.3.3 1.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.3.3\_1.1.4.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

#### Table 7.6B.3.3\_1.1.4.1-1: Test configuration table

Initial Conditions				
Test Environment as specified in TS 38.508-1 [6] clause 4.1	Normal			
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes	Mid range			
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 3)			
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]	Lowest			
	set Parameters			

#### NR/E-UTRA Test Parameters

PCC -	PCC – E-UTRA		EUTRA	N	R
UL/DL Modulation	UL/DL allocation	UL/DL Modulation	UL/DL allocation	UL/DL Modulation	UL/DL allocation
QPSK/QPSK	REFSENS/Full RB	NA/QPSK	NA/Full RB	DFT-s-OFDM QPSK/CP-OFDM QPSK	REFSENS/Full RB (NOTE 1)

- NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2 of TS 38.521-1 [8].
- NOTE 2: Test Channel Bandwidths are checked separately for each EN-DC band, which applicable channel bandwidths are specified in Table 5.3B.1.2-1.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same  $N_{RB\_agg}$ , only the combination with the highest NRB\_SCG is tested.
- NOTE 4: REFSENS refers to Uplink configuration in Table 7.3.2.3-3 in [8] and Table 7.3.3-2 in [10] for NR and E-UTRA CC respectively.
- NOTE 5: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.
  - 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.2 for SS diagram and clause A.3.2 for UE diagram.
  - 2. The parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
  - 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
  - 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
  - 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.3.3\_1.1.4.3.

#### 7.6B.3.3\_1.1.4.2 Test procedure

- 1. SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.3.3\_1.1.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.3.3\_1.1.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

- 3. Set the Downlink signal level to the value as defined in Table 7.6B.3.3\_1.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.6B.3.3\_1.1.5-1 +( [10log(S\_Lc\_RB/N\_RB\_alloc)] for NR CC, [10log(P\_Lc\_RB/N\_RB\_alloc)] for E-UTRA CC) for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal below the aggregated component carriers according to Table 7.6B.3.3\_1.1.5-1. The frequency step size is 1MHz.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers at step 4.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

# 7.6B.3.3\_1.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

#### 7.6B.3.3\_1.1.5 Test Requirement

The throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively with parameters specified in Table 7.6B.3.3\_1.1.5-1 for the specified wanted signal mean power in the presence of interfering signals.

Table 7.6B.3.3 1.1.5-1: Out-of-band blocking for intra-band contiguous EN-DC

EN-DC Aggregated Bandwidth, MHz		≤100	>100, ≤120	>120, ≤140	>140, ≤160	
Pw ii	n Transmission	REFSENS	REFSENS + Aggregated BW specific value below			
	dth Configuration,			9		
p	erCC, dBm		<b>.</b>	<i></i>		
NOTE 1:	Interferer values and					
	TS 36.101 [5]. For int	er-band comb	inations where	the intra-band		
	requirements are app	licable, in whi	ch the E-UTRA	A band is a sub	set of an	
NR-only band, the NR band interferer values and offsets specified from					ed from	
	Table 7.6A.3-2 in TS	38.101-1 [2] a	apply to both E-	UTRA and NR	carriers.	
NOTE 2:	For NR carrier, the tra	ansmitter shal	I be set to 4dB	below PCMAX_L,	f,c,NR at the	
	minimum uplink configuration specified in Table 7.3.2-3 in TS 8.101-1 [2] with					
	PCMAX_L,f,c,NR as define	ed in clause 6	.2B.4.			
NOTE 3:	OTE 3: For E-UTRA carrier, the transmitter shall be set to 4dB below PCMAX L E-UTRA,c					
	at the minimum uplink configuration specified in Table 7.3.1-2in					
	TS 36.101 [5] with Po	CMAX_L_E-UTRA,c	as defined in cl	ause 6.2B.4 fo	r single	
	carrier.				-	

# 7.6B.3.3\_1.2 Out-of-band blocking for EN-DC within FR1 (4 CCs)

#### 7.6B.3.3 1.2.1 Test Purpose

Out-of-band band blocking is defined for an unwanted CW interfering signal falling more than 15 MHz below or above the UE receive band, at which a given average throughput shall meet or exceed the requirement for the specified measurement channels.

For the first 15 MHz below or above the UE receive band the appropriate in-band blocking or adjacent channel selectivity in clause 7.6B.2.1 and clause 7.5B.1 shall be applied.

The lack of out-of-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

#### 7.6B.3.3\_1.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC within FR1 with 4 DL CCs.

#### 7.6B.3.3\_1.2.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.3.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.6B.3.3 1.2.4 Test Description

#### 7.6B.3.3\_1.2.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.3.3\_1.2.4.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

#### Table 7.6B.3.3\_1.2.4.1-1: Test configuration table

Initial Conditions				
Test Environment as specified in TS 38.508-1 [6]	Normal			
clause 4.1				
Test Frequencies as specified in	Mid range			
TS 38.508-1 [6] clause 4.3.1 for different EN-DC				
bandwidth classes				
Test EN-DC bandwidth combination as specified in Table	Highest NrB_agg			
5.3B.1.2-1 across bandwidth combination sets supported	(NOTE 3)			
by the UE	(140123)			
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-	Lowest			
1 [8]				
NR/E-UTRA Te	est Parameters			

#### PCC - E-UTRA SCC1 - EUTRA and SCC2 - EUTRA NR UL/DL UL/DL UL/DL UL/DL UL/DL UL/DL Modulation allocation Modulation allocation Modulation allocation DFT-s-OFDM QPSK/QPSK REFSENS/Full RB NA/QPSK NA/Full RB REFSENS/Full RB QPSK/CP-OFDM (NOTE 1) **QPSK**

- NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2 of TS 38.521-1 [8].
- NOTE 2: Test Channel Bandwidths are checked separately for each EN-DC band, which applicable channel bandwidths are specified in Table 5.3B.1.2-1.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same N<sub>RB\_agg</sub>, only the combination with the highest NRB\_SCG is tested.
- NOTE 4: REFSENS refers to Uplink configuration in Table 7.3.2.3-3 in [8] and Table 7.3.3-2 in [10] for NR and E-UTRA CC respectively.
- NOTE 5: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.
  - 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.2 for SS diagram and clause A.3.2 for UE diagram.
  - 2. The parameter settings for the cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
  - 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
  - 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
  - 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.3.3\_1.2.4.3.

#### 7.6B.3.3\_1.2.4.2 Test procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.3.3\_1.2.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.3.3\_1.2.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.6B.3.3\_1.2.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power

measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.6B.3.3\_1.2.5-1 +(  $[10log(S_{LCRB}/N_{RB\_alloc})]$  for NR CC,  $[10log(P_{LCRB}/N_{RB\_alloc})]$  for E-UTRA CC) for at least the duration of the Throughput measurement, where:

- MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
- For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
- For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal below the aggregated component carriers according to Table 7.6B.3.3\_1.2.5-1. The frequency step size is 1MHz.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers at step 4.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

#### 7.6B.3.3\_1.2.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

#### 7.6B.3.3 1.2.5 Test Requirement

The throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively with parameters specified in Table 7.6B.3.3\_1.2.5-1 for the specified wanted signal mean power in the presence of interfering signals.

Table 7.6B.3.3 1.2.5-1: Out-of-band blocking for intra-band contiguous EN-DC

EN-DC Aggregated Bandwidth, MHz		≤100	>100, ≤120	>120, ≤140	>140, ≤160		
Pw ii	n Transmission	REFSENS	S + Aggregated	BW specific v	alue below		
	dth Configuration,		9				
p	erCC, dBm		•	9			
NOTE 1:	Interferer values and	offsets are sp	ecified from Ta	ble 7.6.2.1A-2	in		
	TS 36.101 [5]. For int	ter-band comb	inations where	the intra-band			
requirements are applicable, in which the E-UTRA band is a subset of an							
	NR-only band, the NI	R band interfe	rer values and	offsets specifie	ed from		
	Table 7.6A.3-2 in TS	38.101-1 [2] a	apply to both E-	UTRA and NR	carriers.		
NOTE 2:	For NR carrier, the tra	ansmitter shal	l be set to 4dB	below PCMAX_L,	<sub>f,c,NR</sub> at the		
	minimum uplink configuration specified in Table 7.3.2-3 in TS 8.101-1 [2] with						
	P <sub>CMAX_L,f,c,NR</sub> as define	ed in clause 6	.2B.4.				
NOTE 3:	TE 3: For E-UTRA carrier, the transmitter shall be set to 4dB below Pcmax_L_E-utra,c						
	at the minimum uplink configuration specified in Table 7.3.1-2in						
	TS 36.101 [5] with Po				r single		
	carrier.						

# 7.6B.4 Narrow band blocking for DC

# 7.6B.4.0 Minimum Conformance Requirements

#### 7.6B.4.0.1 Intra-band contiguous EN-DC

Intra-band contiguous EN-DC narrow band blocking requirement and parameters are defined in Table 7.6B.4.0.1-1.

Table 7.6B.4.0.1-1: Narrow band blocking parameters for intra-band contiguous EN-DC

EN-DC Aggregated	≤100	>100, ≤120	>120, ≤140	>140, ≤160		
Bandwidth, MHz	≥100					
Pw in Transmission	REFSENS + Aggregated BW specific value below					
Bandwidth Configuration,		1	6			
perCC, dBm		'	0			
Puw, dBm (CW)		-5	55			
NOTE 1: Jammer offset is from	n Table 7.6.3.	1A-1 in TS 36.1	01 [5] and is a	pplied from		
the lowest edge of the lowest carrier and the highest edge of the highest						
carrier.						
NOTE 2: For NR carrier, the tr	NOTE 2: For NR carrier, the transmitter shall be set to 4dB below Pcmax_L,f,c,NR at the					
minimum uplink confi	minimum uplink configuration specified in Table 7.3.2-3 [2]with PCMAX_L,f,c,NR					
as defined in clause 6.2B.4.						
NOTE 3: For E-UTRA carrier,	OTE 3: For E-UTRA carrier, the transmitter shall be set to 29dB below PCMAX_L_E-					
UTRA,c at the minimum uplink configuration specified in Table 7.3.1-2 [5] with						
P <sub>CMAX_L_E-UTRA,c</sub> as defined in clause 6.2B.4 for single carrier.						
NOTE 4: If NR carrier BW > 40	NOTE 4: If NR carrier BW > 40 MHz, no narrow band blocking requirements apply					
when blocker is appli	ed at the edge	of the NR car	rier.			

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.4.1.

# 7.6B.4.0.2 Intra-band non-contiguous EN-DC

For the E-TRA sub-block containing one or multiple CC's, the requirement is defined in clause 7.6.3.1 for single carrier operation and in clause 7.6.3.1A for CA in TS 36.101 [5].

For the NR sub-block, the requirement is defined in clause 7.6.4 in TS 38.101-1 [2].

The blocker configuration is defined in the general clause 7.1.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.4.2.

# 7.6B.4.0.3 Inter-band EN-DC within FR1

Narrow band blocking requirement for E-UTRA single carrier and CA operation specified in clauses 7.6.3.1 and 7.6.3.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.4 and 7.6A.4 of TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.4.3.

#### 7.6B.4.0.3a Inter-band NE-DC within FR1

Narrow band blocking requirement for E-UTRA single carrier and CA operation specified in clauses 7.6.3.1 and 7.6.3.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.4 and 7.6A.4 of TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.4.3a.

#### 7.6B.4.0.4 Inter-band EN-DC including FR2

Narrow band blocking requirement for E-UTRA single carrier and CA operation specified in clauses 7.6.3.1 and 7.6.3.1A of TS 36.101 [5] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.4.4.

#### 7.6B.4.0.5 Inter-band EN-DC including both FR1 and FR2

Narrow band blocking requirement for E-UTRA single carrier and CA operation specified in clauses 7.6.3.1 and 7.6.3.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.6.4 and 7.6A.4 of TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6B.4.5.

# 7.6B.4.1 Narrow band blocking for intra-band contiguous EN-DC (2 CCs)

# 7.6B.4.1.1 Test Purpose

Verifies a receiver's ability to receive EN-DC signals at its assigned channel frequencies in the presence of an unwanted narrow band CW interferer at a frequency, which is less than the nominal channel spacing.

The lack of narrow-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

#### 7.6B.4.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.6B.4.1.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.4.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.6B.4.1.4 Test Description

#### 7.6B.4.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.4.1.4.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

#### Table 7.6B.4.1.4.1-1: Test configuration table

Initial Conditions							
	Test Environment as specified in TS 38.508-			Normal			
1 [6] clause 4.1							
	Test Frequencies as specified in			Mid range			
TS 38.508-1	TS 38.508-1 [6] clause 4.3.1 for different EN-						
DC bandwidt	h classes						
Test EN-DC	bandwidth (	combination as	6	L account MI	I Carla a a t N		
specified in T	able 5.3B.1	1.2-1 across ba	andwidth	Lowest N <sub>RB_a</sub>	<sub>igg</sub> , Hignest iv	RB_agg	
		rted by the UE		(NOTE 3)			
		ed in Table 5.3	.5-1 in	Lowest			
TS 38.521-1	•						
		NF	R/E-UTRA	Test Paramete	ers		
Downlink Configuration				Uplink Configuration			
NR	NR RB	E-UTRA	E-UTRA	NR	ND DD	E-UTRA	E-UTRA
	NR RB		E-UTRA RB	NR Modulation	NR RB	E-UTRA Modulation	E-UTRA RB
NR	NR RB	Modulation		Modulation	NR RB allocation		
NR Modulation	NR RB allocation	Modulation	RB	Modulation			RB
NR Modulation	NR RB allocation Full RB	Modulation	RB	Modulation			RB
NR Modulation	NR RB allocation	Modulation	RB allocation	Modulation  DFT-s-	allocation	Modulation	RB allocation
NR Modulation CP-OFDM QPSK	NR RB allocation Full RB (NOTE 1)	Modulation QPSK	RB allocation Full RB	Modulation  DFT-s- OFDM QPSK	allocation REFSENS	Modulation	RB allocation REFSENS
NR Modulation CP-OFDM QPSK NOTE 1: Fu	NR RB allocation Full RB (NOTE 1)	Modulation QPSK	RB allocation Full RB sed per ea	Modulation  DFT-s- OFDM QPSK	allocation REFSENS	Modulation QPSK	RB allocation REFSENS
NR Modulation CP-OFDM QPSK NOTE 1: Fu	Full RB (NOTE 1) II RB alloca 3.2.4.1-2 of	Modulation  QPSK  ation shall be u TS 38.521-1 [	RB allocation Full RB sed per eat 8].	Modulation  DFT-s- OFDM QPSK ch SCS and ch	REFSENS	Modulation  QPSK s specified in Ta	RB allocation REFSENS
NR Modulation CP-OFDM QPSK NOTE 1: Fu 7.3 NOTE 2: Te	Full RB (NOTE 1) II RB alloca 3.2.4.1-2 of st Channel	Modulation  QPSK  ation shall be u TS 38.521-1 [i Bandwidths ai	RB allocation Full RB sed per ea 8]. re checked	Modulation  DFT-s- OFDM QPSK ch SCS and ch	REFSENS nannel BW as each EN-DC	Modulation QPSK	RB allocation REFSENS
NR Modulation CP-OFDM QPSK NOTE 1: Fu 7.: NOTE 2: Te	Full RB (NOTE 1) II RB alloca 3.2.4.1-2 of est Channel annel band	QPSK ation shall be u TS 38.521-1 [i Bandwidths al	RB allocation Full RB sed per ear 8]. re checked ecified in Ta	DFT-s-OFDM QPSK ch SCS and ch separately for ble 5.3B.1.2-1	REFSENS nannel BW as each EN-DC	Modulation  QPSK s specified in Ta	RB allocation REFSENS able pplicable
NR Modulation  CP-OFDM QPSK  NOTE 1: Fu 7.3  NOTE 2: Te ch NOTE 3: If t	Full RB (NOTE 1) III RB alloca 3.2.4.1-2 of st Channel annel band the UE sup	QPSK ation shall be u TS 38.521-1 [i Bandwidths al	RB allocation Full RB sed per ear8]. re checked ecified in Ta	DFT-s-OFDM QPSK ch SCS and ch separately for ble 5.3B.1.2-1 ations in the E	REFSENS nannel BW as each EN-DC . N-DC Config	Modulation  QPSK s specified in Ta c band, which a urration with the	RB allocation REFSENS able pplicable

1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.2 for SS diagram and clause A.3.2 for UE diagram.

NOTE 4: REFSENS refers to Uplink configuration in Table 7.3.2.3-3 in [8] and Table 7.3.3-2 in [10]

NOTE 5: In an E-UTRA band or FR1 band where UE supports 4Rx, the test shall be performed only

with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table

for NR and E-UTRA CC respectively.

7.3.2.5-2) is used in the test requirements.

- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.4.1.4.3.

#### 7.6B.4.1.4.2 Test procedure

- 1. SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.4.1.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.4.1.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

- 3. Set the Downlink signal level to the value as defined in Table 7.6B.4.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.6B.4.1.5-1 for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) = 1.7dB, where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) = 2.0dB, where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size.
- 4. Set the parameters of the CW signal generator for an interfering signal below the aggregated component carriers according to Table 7.6B.4.1.5-1.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers at step 4.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

#### 7.6B.4.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

# 7.6B.4.1.5 Test Requirement

The throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively with parameters specified in Table 7.6B.4.1.5-1 for the specified wanted signal mean power in the presence of interfering signals.

Table 7.6B.4.1.5-1: Narrow band blocking for intra-band contiguous EN-DC

	DC Aggregated ndwidth, MHz	≤100	>100, ≤120	>120, ≤140	>140, ≤160		
Pw i	n Transmission	REFSENS	S + Aggregated	BW specific v	alue below		
	dth Configuration, perCC, dBm		1	6			
Pu	JW, dBm (CW)		-5	55			
NOTE 1:	Jammer offset is fron	n Table 7.6.3. <sup>2</sup>	1A-1 in TS 36.1	01 [5] and is a	pplied from		
	the lowest edge of th	e lowest carrie	er and the highe	est edge of the	highest		
	carrier.						
NOTE 2: For NR carrier, the transmitte							
	minimum uplink confi			.3.2-3 in TS 38	.101-1 [2]		
	with P <sub>CMAX_L,f,c,NR</sub> as o						
NOTE 3:	NOTE 3: For E-UTRA carrier, the transmitter shall be set to 29dB below Pcmax_L_E-						
	UTRA,c at the minimum uplink configuration specified in Table 7.3.1-2 in						
	TS 36.101 [5] with P <sub>CMAX_L_E-UTRA,c</sub> as defined in clause 6.2B.4 for single						
	carrier.						
NOTE 4:	If NR carrier BW > 40	) MHz, no nar	row band block	ing requiremer	nts apply		
	when blocker is applied at the edge of the NR carrier.						

Table 7.6B.4.1.5-2: Void

Table 7.6B.4.1.5-3: Void

# 7.6B.4.2 Narrow band blocking for intra-band non-contiguous EN-DC (2 CCs)

#### 7.6B.4.2.1 Test Purpose

Same test purpose as in clause 7.6.4.1 in TS 38.521-1 [8] for the NR carrier.

#### 7.6B.4.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.6B.4.2.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.4.0.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.4.2.4 Test Description

Same test description as in clause 7.6.4.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

Table 7.6B.4.2.4-1: Test Configuration Table

Initial Conditions					
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes	High range with maxWGap				
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 1)				
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same  NRB agg , only the combination with the highest NRB SCG is tested.					

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1 except for the parameters specified in Table 7.6B.4.2.4-1.

For Initial conditions as in clause 7.6.4.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6.4.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6.4.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 3 of Test procedure as in clause 7.6.4.4.2 in TS 38.521-1 [8] shall treat the in-gap tests as below: For intra-band non-contiguous EN-DC of two sub-blocks with channel bandwidth larger than or equal to 5 MHz, the existing requirements apply for in-gap tests only if the corresponding interferer frequency offsets satisfy the following condition in relation to the sub-block gap size  $W_{\text{gap}}$ , so that the interferer frequency position does not change the nature of the core requirement tested:

 $W_{gap} \ge 2 \cdot |FInterferer (offset)| - BW_{Channel}$ 

Step 4 of Test procedure as in clause 7.6.4.4.2 in TS 38.521-1 [8] is replaced by:

- 4. Set the downlink signal level for NR CC according to the Table 7.6.4.5-1 in TS 38.521-1 [8] as appropriate. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as MU to -(MU + Uplink power control window size) dB of (P<sub>CMAX\_L,c</sub> 29dB) for E-UTRA CC, and of 4dB below P<sub>CMAX\_L,c</sub> for NR CC for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].

#### 7.6B.4.2.5 Test Requirement

Same test requirement as in clause 7.6.4.5 in TS 38.521-1 [8].

#### 7.6B.4.3 Narrow band blocking for inter-band EN-DC within FR1 (1 NR CC)

#### 7.6B.4.3.1 Test Purpose

Same test purpose as in clause 7.6.4.1 in TS 38.521-1 [8] for the NR carrier.

#### 7.6B.4.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR DL CC.

#### 7.6B.4.3.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.4.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.4.3.4 Test Description

Same test description as in clause 7.6.4.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6.4.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6.4.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6.4.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.4.3.5 Test Requirement

Same test requirement as in clause 7.6.4.5 in TS 38.521-1 [8].

## 7.6B.4.3\_1 Narrow band blocking for EN-DC within FR1 (>2 CCs)

# 7.6B.4.3\_1.1 Narrow band blocking for EN-DC within FR1 (3 CCs)

#### 7.6B.4.3\_1.1.1 Test Purpose

Verifies a receiver's ability to receive EN-DC signals at its assigned channel frequencies in the presence of an unwanted narrow band CW interferer at a frequency, which is less than the nominal channel spacing.

The lack of narrow-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

#### 7.6B.4.3\_1.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC within FR1 with 3 DL CCs or inter-band EN-DC within FR1 with 3 DL CCs.

#### 7.6B.4.3 1.1.3 Minimum Conformance Requirements

For intra-band contiguous EN-DC within FR1 with 3 DL CCs: The minimum conformance requirements are defined in clause 7.6B.4.0.1. Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

For inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs): The minimum conformance requirements are defined in clause 7.6B.4.0.3. No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.6B.4.3\_1.1.4 Test Description

#### 7.6B.4.3\_1.1.4.1 Intra-band contiguous EN-DC within FR1 with 3 DL CCs

#### 7.6B.4.3\_1.1.4.1.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.4.3\_1.1.4.1.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

#### Table 7.6B.4.3\_1.1.4.1.1-1: Test configuration table

·		
Test Environment as specified in TS 38.508-1 [6] clause 4.1	Normal	
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes	Mid range	
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (NOTE 3)	
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]	Lowest	

#### NR/E-UTRA Test Parameters

PCC – E-UTRA		SCC – EUTRA		NR	
UL/DL Modulation	UL/DL allocation	UL/DL Modulation	UL/DL allocation	UL/DL Modulation	UL/DL allocation
QPSK/QPSK	REFSENS/Full RB	NA/QPSK	NA/Full RB	DFT-s-OFDM QPSK/CP-OFDM QPSK	REFSENS/Full RB (NOTE 1)

- NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2 of TS 38.521-1 [8].
- NOTE 2: Test Channel Bandwidths are checked separately for each EN-DC band, which applicable channel bandwidths are specified in Table 5.3B.1.2-1.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same  $N_{RB\_agg}$ , only the combination with the highest NRB\_SCG is tested.
- NOTE 4: REFSENS refers to Uplink configuration in Table 7.3.2.3-3 in [8] and Table 7.3.3-2 in [10] for NR and E-UTRA CC respectively.
- NOTE 5: In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.
  - 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.2 for SS diagram and clause A.3.2 for UE diagram.
  - 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
  - 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
  - 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
  - 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.4.3\_1.1.4.1.3.

# 7.6B.4.3\_1.1.4.1.2 Test procedure

- 1. SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.4.3\_1.1.4.1.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.4.3\_1.1.4.1.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

- 3. Set the Downlink signal level to the value as defined in Table 7.6B.4.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.6B.4.1.5-1 +( [ $10\log(S_{LCRB}/N_{RB_alloc})$ ] for NR CC, [ $10\log(P_{LCRB}/N_{RB_alloc})$ ] for E-UTRA CC) for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal below the aggregated component carriers according to Table 7.6B.4.1.5-1.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers at step 4.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

# 7.6B.4.3\_1.1.4.1.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM PRECODER ENABLED.

#### 7.6B.4.3\_1.1.4.2 Inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs)

Same test description as in clause 7.6.4.4 or 7.6A.4.1.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.4.1.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.4.1.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.4.1.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.4.3\_1.1.5 Test Requirement

For intra-band contiguous EN-DC within FR1 with 3 DL CCs: Same test requirement as in clause 7.6B.4.1.5.

For inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs): Same test requirement as in clause 7.6A.4.1.5 in TS 38.521-1 [8].

#### 7.6B.4.3\_1.2 Narrow band blocking for EN-DC within FR1 (4 CCs)

#### 7.6B.4.3\_1.2.1 Test Purpose

Verifies a receiver's ability to receive EN-DC signals at its assigned channel frequencies in the presence of an unwanted narrow band CW interferer at a frequency, which is less than the nominal channel spacing.

The lack of narrow-band blocking ability will decrease the coverage area when other NodeB transmitters exist (except in the adjacent channels and spurious response).

# 7.6B.4.3\_1.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC within FR1 with 4 DL CCs or inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs).

#### 7.6B.4.3\_1.2.3 Minimum Conformance Requirements

For intra-band contiguous EN-DC within FR1 with 4 DL CCs: The minimum conformance requirements are defined in clause 7.6B.4.0.1. Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

For inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs): The minimum conformance requirements are defined in clause 7.6B.4.0.3. No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

## 7.6B.4.3\_1.2.4 Test Description

# 7.6B.4.3\_1.2.4.1 Intra-band contiguous EN-DC within FR1 with 4 DL CCs

## 7.6B.4.3 1.2.4.1.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in Table 7.6B.4.3\_1.2.4.1.1-1. The details of the uplink and downlink reference measurement channels (RMCs) are specified in Annex A.2 and A.3 respectively. The details of the OCNG patterns used are specified in TS 36.521-1 [10] Annex A.5 and in TS 38.521-1 [8] Annex A.5 for E-UTRA CG and NR CG respectively. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

PCC - E-UTRA

#### Table 7.6B.4.3\_1.2.4.1.1-1: Test configuration table

Normal  Mid range
Mid range
wild range
Lowest N <sub>RB_agg</sub> , Highest N <sub>RB_agg</sub> (NOTE 3)
Lowest

# SCC1 – EUTRA and SCC2 – EUTRA UL/DL UL/DL

UL/DL	UL/DL	UL/DL	UL/DL	UL/DL	UL/DL
Modulation	allocation	Modulation	allocation	Modulation	allocation
QPSK/QPSK	REFSENS/Full RB	NA/QPSK	NA/Full RB	DFT-s-OFDM QPSK/CP-OFDM QPSK	

- NOTE 1: Full RB allocation shall be used per each SCS and channel BW as specified in Table 7.3.2.4.1-2 of TS 38.521-1 [8].
- NOTE 2: Test Channel Bandwidths are checked separately for each EN-DC band, which applicable channel bandwidths are specified in Table 5.3B.1.2-1.
- NOTE 3: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same  $N_{RB\_agg}$ , only the combination with the highest NRB\_SCG is tested.
- NOTE 4: REFSENS refers to Uplink configuration in Table 7.3.2.3-3 in [8] and Table 7.3.3-2 in [10] for NR and E-UTRA CC respectively.
- NOTE 5: In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.
  - 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 Annex A, in Figure A.3.1.4.2 for SS diagram and clause A.3.2 for UE diagram.
  - 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
  - 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C and TS 38.521-1 [8] Annex C for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
  - 4. The UL and DL Reference Measurement channels are TS 36.521-1 [10] Annex A.2, A.3 and TS 38.521-1 [8] Annex A.2, A.3 for E-UTRA CG and NR CG respectively.
  - 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
  - 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 7.6B.4.3\_1.2.4.1.3.

#### 7.6B.4.3\_1.2.4.1.2 Test procedure

- 1. SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.4.3\_1.2.4.1.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.4.3\_1.2.4.1.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

- 3. Set the Downlink signal level to the value as defined in Table 7.6B.4.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.6B.4.1.5-1 +( [ $10\log(S_{LCRB}/N_{RB\_alloc})$ ] for NR CC, [ $10\log(P_{LCRB}/N_{RB\_alloc})$ ] for E-UTRA CC) for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal below the aggregated component carriers according to Table 7.6B.4.1.5-1.
- 5. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Repeat steps from 4 to 5, using an interfering signal above the aggregated component carriers at step 4.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

# 7.6B.4.3\_1.2.4.1.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM PRECODER ENABLED.

#### 7.6B.4.3\_1.2.4.2 Inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs)

Same test description as in clause 7.6A.4.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.4.2.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.4.2.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.4.2.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.4.3\_1.2.5 Test Requirement

For intra-band contiguous EN-DC within FR1 with 4 DL CCs: Same test requirement as in clause 7.6B.4.1.5.

For inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs): Same test requirement as in clause 7.6A.4.2.5 in TS 38.521-1 [8].

## 7.6B.4.3\_1.3 Narrow band blocking for EN-DC within FR1 (5 CCs)

#### 7.6B.4.3\_1.3.1 Test Purpose

Same test purpose as in clause 7.6B.4.3.1.

#### 7.6B.4.3\_1.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 16 and forward, supporting inter-band EN-DC within FR1 with 5 DL CCs (4 NR DL CCs).

#### 7.6B.4.3\_1.3.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.6B.4.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.6B.4.3\_1.3.4 Test Description

Same test description as in clause 7.6A.4.3.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.6A.4.3.4.1 in TS 38.521-1 [8], add step 2.1 and step 3.1 as follows:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.6A.4.3.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Add step 7 to Initial conditions in clause 7.6A.4.3.4.1 in TS 38.521-1 [8] as follows:

7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.6B.4.3\_1.3.5 Test Requirement

Same test requirement as in clause 7.6A.4.3.5 in TS 38.521-1 [8].

## 7.6B.4.3\_1.4 Void

## 7.6B.4.3a Narrow band blocking for inter-band NE-DC within FR1 (2 CCs)

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 7.6.4 and 7.6A.4 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 7.6.3 and 7.6.3A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 7.6E Blocking characteristics for V2X in FR1

# 7.6E.0 Minimum conformance requirements

For intra-band V2X operation, the blocking characteristics specified in clause 7.6.1.1G in TS 36.101 [5] and specified in clause 7.6E in TS 38.101-1 [2] apply when all SL reception CCs are activated at same time.

For inter-band con-current NR V2X operation, the blocking characteristics requirements shall be applied per each component carrier. The in-band blocking and out of band blocking requirement specified in clause 7.6E in TS 38.101-1 [2] shall apply on NR V2X carrier and the requirement specified in clause 7.6 in TS 36.101 [5] shall apply for the E-UTRA downlink reception in licensed band while all downlink carriers are active. The requirements specified in subclause 7.6.1.1G and 7.6.2.1G of TS 36.1 01 [5] shall apply for the E-UTRA sidelink reception and the requirements specified in subclause 7.6 of TS 38.101-1 [2] shall apply for the NR downlink reception while all downlink carriers are active.  $P_{Interferer}$  power is increased by  $\Delta R_{IB,c}$  in the requirement.

No narrow band blocking requirement applied for NR V2X carrier.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.6E.

# 7.6E.1 In-band blocking for V2X operation

# 7.6E.1.1 Test purpose

In-band blocking is defined for an unwanted interfering signal falling into the frequency range (see clause 7.6.1 and 7.6.1G of TS 36.521-1 [10] and clause 7.6.2 and 7.6E.2 of TS 38.521-1 [8]), at which the relative throughput shall meet or exceed the requirement for the specified measurement channels.

The lack of in-band blocking ability will decrease the coverage area when other transmitters exist (except in the adjacent channels and spurious response).

## 7.6E.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. The requirements in this test case can be well covered in clause 7.6.1 and 7.6.1G of TS 36.521-1 [10] and clause 7.6.2 and 7.6E.2 of TS 38.521-1 [8] and don't need to be tested again.

# 7.6E.2 Out-of-band blocking for V2X operation

# 7.6E.2.1 Test purpose

Out-of-band blocking for V2X is defined for an unwanted CW interfering signal falling into the frequency range (see clause 7.6.2 and 7.6.2G of TS 36.521-1 [10] and clause 7.6.3 and 7.6E.3 of TS 38.521-1 [8]), at which a given average throughput shall meet or exceed the requirement for the specified measurement channels in aggregated signals.

The lack of out-of-band blocking ability will decrease the coverage area when other transmitters exist (except in the adjacent channels and spurious response).

#### 7.6E.2.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. The requirements in this test case can be well covered in clause 7.6.2 and 7.6.2G of TS 36.521-1 [10] and clause 7.6.3 and 7.6E.3 of TS 38.521-1 [8] and don't need to be tested again.

# 7.7 Void

# 7.7A Spurious response for CA

## 7.7A.1 Test purpose

Same test purpose as in clause 7.7 in TS 38.521-1 [8] for NR FR1 carrier(s).

#### 7.7A.2 Test applicability

The requirements are only for FR1. Therefore, only the conducted requirements are tested.

No test case details are specified. The NR/5GC requirements for Spurious response apply and are tested in TS 38.521-1 [8] clause 7.7 and 7.7A.

# 7.7B Spurious response for DC

# 7.7B.0 Minimum Conformance Requirements

# 7.7B.0.1 Intra-band contiguous EN-DC

Intra-band contiguous EN-DC spurious response requirement and parameters are defined in Table 7.7B.0.1-1.

Table 7.7B.0.1-1: Spurious Response Parameters for intra-band contiguous EN-DC

	DC Aggregated ndwidth, MHz	≤100 >100, ≤120 >120, ≤140 >140			
Pw i	n Transmission	REFSENS	S + Aggregated	BW specific v	alue below
	dth Configuration, perCC, dBm	<b>3</b> /			
P <sub>interferer</sub> , dBm (CW) -44					
	For NR carrier, the traminimum uplink configuration with P <sub>CMAX_L,f,c,NR</sub> as of For E-UTRA carrier, the minimum TS 36.101 [5] with Pocarrier.	guration speci defined in clau the transmitter uplink config	ified in Table 7. se 6.2B.4. r shall be set to uration specifie	3.2-3 in TS 38 29dB below P d in Table 7.3.	.101-1 [2] CMAX_L_E- 1-2 in

The normative reference for this requirement is TS 38.101-3 [4] clause 7.7B.1.

## 7.7B.0.2 Intra-band non-contiguous EN-DC

For the E-UTRA sub-block containing one or multiple CC's, the requirement is defined in clause 7.7.1 for single carrier operation and in clause 7.7.1A for CA in TS 36.101 [5].

For the NR sub-block, the requirement is defined in clause 7.7 in TS 38.101-1 [2].

The normative reference for this requirement is TS 38.101-3 [4] clause 7.7B.2.

## 7.7B.0.3 Inter-band EN-DC within FR1

Spurious response requirement for E-UTRA single carrier and CA operation specified in clauses 7.7.1 and 7.7.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.7 and 7.7A of TS 38.101-1 [2] apply for lowest level EN-DC fallbacks (two bands) in clause 5.5B.4.1 with following conditions:

- one E-UTRA uplink carrier with the output power set to 4 dB below P<sub>CMAX\_L,c</sub> and the NR band whose downlink is being tested has its uplink carrier output power set to 29 dB below P<sub>CMAX\_L,f,c</sub>.

- one NR uplink carrier with the output power set to 4 dB below  $P_{CMAX\_L,f,c}$  on the NR band with both E-UTRA and NR downlinks being tested with E-UTRA output power set to 29 dB below  $P_{CMAX\_L,c}$ .

The normative reference for this requirement is TS 38.101-3 [4] clause 7.7B.3.

#### 7.7B.0.3a Inter-band NE-DC within FR1

Spurious response requirement for E-UTRA single carrier and CA operation specified in clauses 7.7.1 and 7.7.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.7 and 7.7A of TS 38.101-1 [2] apply for lowest level NE-DC fallbacks (two bands) in clause 5.5B.4a.1 with following conditions:

- one E-UTRA uplink carrier with the output power set to 4 dB below P<sub>CMAX\_L,c</sub> and the NR band whose downlink is being tested has its uplink carrier output power set to 29 dB below P<sub>CMAX\_L,c</sub>.
- one NR uplink carrier with the output power set to 4 dB below  $P_{CMAX\_L,f,c}$  on the NR band with both E-UTRA and NR downlinks being tested with E-UTRA output power set to 29 dB below  $P_{CMAX\_L,c}$ .

The normative reference for this requirement is TS 38.101-3 [4] clause 7.7B.3a.

# 7.7B.0.4 Inter-band EN-DC including FR2

Spurious response requirement for E-UTRA single carrier and CA operation specified in clauses 7.7.1 and 7.7.1A of TS 36.101 [5] apply for lowest level EN-DC fallbacks (two bands) in clause 5.5B.5.1 with only E-UTRA UL with output power as in TS 36.101 [5] (4 dB below P<sub>CMAX L</sub>).

The normative reference for this requirement is TS 38.101-3 [4] clause 7.7B.4.

# 7.7B.0.5 Inter-band EN-DC including both FR1 and FR2

Spurious response requirement for E-UTRA single carrier and CA operation specified in clauses 7.7.1 and 7.7.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.7 and 7.7A of TS 38.101-1 [2] apply for lowest level EN-DC fallbacks (three bands) in clause 5.5B.6.2 with only E-UTRA UL with output power as in TS 36.101 [5] (4 dB below  $P_{\text{CMAX L}}$ ).

The normative reference for this requirement is TS 38.101-3 [4] clause 7.7B.5.

# 7.7B.1 Spurious Response for intra-band contiguous EN-DC (2 CCs)

#### 7.7B.1.1 Test Purpose

Spurious response for EN-DC verifies the receiver's ability to receive a wanted aggregated signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the out of band blocking limit as specified in clause 7.6B.3.1 is not met.

The lack of the spurious response ability decreases the coverage area when other unwanted interfering signal exists at any other frequency.

## 7.7B.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

## 7.7B.1.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.7B.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.7B.1.4 Test Description

#### 7.7B.1.4.1 Initial condition

The initial conditions shall be the same as in clause 7.6B.3.1.4.1 in order to test spurious responses obtained in clause 7.6B.3.1 under the same conditions.

# 7.7B.1.4.2 Test procedure

- 1. SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.3.1.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.3.1.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.7B.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.7B.1.5-1 for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW.
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal according to Table 7.7B.1.5-1. The spurious frequencies are taken from records in the final step of test procedures in clause 7.6B.3.1.4.2.
- 5. For each spurious frequency, Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

## 7.7B.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

# 7.7B.1.5 Test Requirement

The throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively with parameters specified in Table 7.7B.1.5-1 for the specified wanted signal mean power in the presence of interfering signals.

Table 7.7B.1.5-1: Spurious Response for intra-band contiguous EN-DC

	DC Aggregated ndwidth, MHz	≤100 >100, ≤120 >120, ≤140 >140,					
Pw ir	n Transmission	REFSENS	S + Aggregated	BW specific v	alue below		
	dth Configuration, perCC, dBm	9					
Pinter	rferer, dBm (CW)	-44					
NOTE 1:	: For NR carrier, the transmitter shall be set to 4dB below PCMAX_L,f,c,NR at the						
	minimum uplink confi			3.2-3 in TS 38	.101-1 [2]		
	with P <sub>CMAX_L,f,c,NR</sub> as o	lefined in clau	se 6.2B.4.				
NOTE 2:	For E-UTRA carrier, t						
	UTRA,c at the minimum uplink configuration specified in Table 7.3.1-2 in						
	TS 36.101 [5] with P <sub>CMAX_L_E-UTRA,c</sub> as defined in clause 6.2B.4 for single						
	carrier.						

Table 7.7B.1.5-2: Void

Table 7.7B.1.5-3: Void

# 7.7B.2 Spurious Response for intra-band non-contiguous EN-DC (2 CCs)

#### 7.7B.2.1 Test Purpose

Same test purpose as in clause 7.7.1 in TS 38.521-1 [8] for the NR carrier.

#### 7.7B.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.7B.2.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.7B.0.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.7B.2.4 Test Description

Same test description as in clause 7.7.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial conditions shall be the same as the initial conditions in clause 7.6B.3.2.4 in order to test spurious responses obtained in clause 7.6B.3.2 under the same conditions.

Step 4 of Test procedure as in clause 7.7.4.2 in TS 38.521-1 [8] is replaced by:

- 4. Set the downlink signal level for NR CC according to the Table 7.7.5-1 or 7.7.5-1a in TS 38.521-1 [8] as appropriate. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of (P<sub>CMAX\_L,c</sub> 29dB) for E-UTRA CC, and of 4dB below P<sub>CMAX\_L,c</sub> for NR CC for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance

is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].

#### 7.7B.2.5 Test Requirement

Same test requirement as in clause 7.7.5 in TS 38.521-1 [8].

# 7.7B.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs)

#### 7.7B.3.1 Test Purpose

Spurious response is a measure of the ability of the receiver to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency for which a response is obtained, i.e. for which the out-of-band blocking limit as specified in subclause 7.6B.3.3 is not met.

The lack of the spurious response ability decreases the coverage area when other unwanted interfering signal exists at any other frequency.

#### 7.7B.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 2 DL CCs.

#### 7.7B.3.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.7B.0.3.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

### 7.7B.3.4 Test Description

#### 7.7B.3.4.1 Initial Conditions

The initial conditions shall be the same as in clause 7.6B.3.3.4.1 in order to test spurious responses obtained in clause 7.6B.3.3 under the same conditions.

### 7.7B.3.4.2 Test procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.3.3.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.3.3.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.7B.3.5-1, Table 7.7B.3.5-3, or Table 7.7B.3.5-4 for E-UTRA CC and NR CC respectively. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of (P<sub>CMAX\_L,c</sub> 4dB) for E-UTRA CC, and of 29 dB below P<sub>CMAX\_L,f,c</sub> for NR CC for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance

is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.

- For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal according to Table 7.7B.3.5-2. The spurious frequencies are taken from records in test procedures in clause 7.6B.3.3.4.2.
- 5. For the spurious frequency, measure the average throughput of NR CC for a duration sufficient to achieve statistical significance according to Annex H.2.
- 6. Set the Downlink signal level to the value as defined in Table 7.7B.3.5-1, Table 7.7B.3.5-3, or Table 7.7B.3.5-4 for E-UTRA CC and NR CC respectively. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of (P<sub>CMAX\_L,f,c</sub> 4dB) for NR CC, and of 29 dB below P<sub>CMAX\_L,c</sub> for E-UTRA CC for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 7. Set the parameters of the CW signal generator for an interfering signal according to Table 7.7B.3.5-2. The spurious frequencies are taken from records in test procedures in clause 7.6B.3.3.4.2 for E-UTRA CC and NR CC testing respectively..
- 8. For the spurious frequency, measure the average throughput of E-UTRA CC and NR CC respectively for a duration sufficient to achieve statistical significance according to Annex H.2.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

## 7.7B.3.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6.

#### 7.7B.3.5 Test Requirement

For E-UTRA bands, the throughput measurement derived in test procedure shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 of TS 36.521-1 [10] with parameters specified in Tables 7.7B.3.5-1 and 7.7B.3.5-2.

For NR bands with  $F_{DL\_high}$  < 2700 MHz and  $F_{UL\_high}$  < 2700 MHz, the throughput measurement derived in test procedure shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 and A.3.3 of TS 38.521-1 [8] with parameters specified in Tables 7.7B.3.5-3 and 7.7B.3.5-2.

For NR bands with  $F_{DL\_low} \ge 3300$  MHz and  $F_{UL\_low} \ge 3300$  MHz, the throughput measurement derived in test procedure shall be  $\ge 95\%$  of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 and A.3.3 of TS 38.521-1 [8] with parameters specified in Tables 7.7B.3.5-4 and 7.7B.3.5-2.

Table 7.7B.3.5-1: Spurious response parameters for E-UTRA bands

Rx Parameter		Units	Channel bandwidth					
			1.4	3 MHz	5 MHz	10	15	20
			MHz			MHz	MHz	MHz
Po	wer in		REFS	ENS + ch	annel ban	dwidth sp	ecific valu	e below
Bar	Transmission Bandwidth		6	6	6	6	7	9
Note 1:	Configuration							
Note 2:	The REFSEN	NS power le	evel is sp	ecified in		.3-1 of TS	36.521-1	[10] for

Table 7.7B.3.5-2: Spurious Response for E-UTRA bands and NR bands

Parameter	Unit	Level
P <sub>Interferer</sub> (CW)	dBm	-44
Finterferer	MHz	Spurious response frequencies

Table 7.7B.3.5-3: Spurious response parameters for NR bands with  $F_{DL\_high}$  < 2700 MHz and  $F_{UL\_high}$  < 2700 MHz

DV norometer	Units	Channel bandwidth					
RX parameter	Units	5 MHz	10 MHz	15 MHz	20 MHz	25 MHz	
Power in	dBm	R	EFSENS + char	nel bandwidth s	pecific value belo	)W	
transmission bandwidth configuration	dB	6	6	7	9	10	
DV noromotor	Units		С	hannel bandwic	İth		
RX parameter	Units	30 MHz	40 MHz	50 MHz	60 MHz	80 MHz	
Power in	dBm	R	EFSENS + char	nnel bandwidth specific value below			
transmission bandwidth configuration	dB	11	12	13	14	15	
DV noremeter	Units		С	hannel bandwid	İth		
RX parameter	Units	90 MHz	100 MHz				
Power in transmission bandwidth	dBm	bandwidth s	REFSENS + channel bandwidth specific value below				
configuration	dB	15.5	16				
	ansmitter sh .521-1 [8].	nall be at the mir	imum UL config	uration specified	in Table 7.3.2.3-	3 of	

Table 7.7B.3.5-4: Spurious response parameters for NR bands with F<sub>DL\_low</sub> ≥ 3300 MHz and F<sub>UL\_low</sub> ≥ 3300 MHz

RX parameter	Units	Channel bandwidth					
		10 MHz	15 MHz	20 MHz	40 MHz	50 MHz	
Power in	dBm	R	EFSENS + chan	nel bandwidth sp	ecific value belo	w	
transmission bandwidth configuration	dB	6	7	9	9	9	
RX parameter	RX parameter Units Channel bandwidth		th				
		60 MHz	80 MHz	90 MHz	100 MHz		
Power in	dBm	REFSENS	+ channel band	dwidth specific va	alue below		
transmission bandwidth configuration	dB	9	9	9	9		
NOTE: The tra	ansmitter sh	all be at the min	imum UL configu	ration specified	in Table 7.3.2.3-	3 of	
	521-1 [8].		3	1			

# 7.7B.3\_1Spurious Response for EN-DC within FR1 (>2 CCs)

# 7.7B.3\_1.1 Spurious Response for EN-DC within FR1 (3 CCs)

## 7.7B.3\_1.1.1 Test Purpose

Spurious response for EN-DC verifies the receiver's ability to receive a wanted aggregated signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the out of band blocking limit as specified in clause 7.6B.3.3\_1.1 is not met.

The lack of the spurious response ability decreases the coverage area when other unwanted interfering signal exists at any other frequency.

#### 7.7B.3 1.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 3 DL CCs.

#### 7.7B.3\_1.1.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.7B.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.7B.3\_1.1.4 Test Description

#### 7.7B.3\_1.1.4.1 Initial condition

The initial conditions shall be the same as in clause 7.6B.3.3\_1.1.4.1 in order to test spurious responses obtained in clause 7.6B.3.3\_1.1 under the same conditions.

#### 7.7B.3\_1.1.4.2 Test procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.3.3\_1.1.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.3.3\_1.1.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

- 3. Set the Downlink signal level to the value as defined in Table 7.7B.3\_1.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.7B.3\_1.1.5-1 +(  $[10log(S_{LCRB}/N_{RB\_alloc})]$  for NR CC,  $[10log(P_{LCRB}/N_{RB\_alloc})]$  for E-UTRA CC) for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW.
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 4. Set the parameters of the CW signal generator for an interfering signal according to Table 7.7B.3\_1.1.5-1. The spurious frequencies are taken from records in the final step of test procedures in clause 7.6B.3.3\_1.1.4.2.
- 5. For each spurious frequency, Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

#### 7.7B.3 1.1.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

#### 7.7B.3\_1.1.5 Test Requirement

EN DC Aggregated

The throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively with parameters specified in Table 7.7B.3\_1.1.5-1 for the specified wanted signal mean power in the presence of interfering signals.

Table 7.7B.3\_1.1.5-1: Spurious Response for intra-band contiguous EN-DC

-100 <120 -120 <140 -140 <160

	ndwidth, MHz	≤100	>100, ≤120	>120, ≤140	>140, ≤160	
Pw ir	n Transmission	REFSENS	S + Aggregated	BW specific va	alue below	
	dth Configuration, erCC, dBm		,	9		
Pinter	rferer, dBm (CW)		-4	14		
	NOTE 1: For NR carrier, the transmitter shall be set to 4dB below P <sub>CMAX_L,f,c,NR</sub> at the minimum uplink configuration specified in Table 7.3.2-3 in TS 38.101-1 [2] with P <sub>CMAX_L,f,c,NR</sub> as defined in clause 6.2B.4.  NOTE 2: For E-UTRA carrier, the transmitter shall be set to 4dB below P <sub>CMAX_L,E-UTRA,C</sub> at the minimum uplink configuration specified in Table 7.3.1-2 in TS 36.101 [5] with P <sub>CMAX_L,E-UTRA,C</sub> as defined in clause 6.2B.4 for single carrier.					

# 7.7B.3\_1.2 Spurious Response for EN-DC within FR1 (4 CCs)

#### 7.7B.3\_1.2.1 Test Purpose

Spurious response for EN-DC verifies the receiver's ability to receive a wanted aggregated signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the out of band blocking limit as specified in clause 7.6B.3.3 1.2 is not met.

The lack of the spurious response ability decreases the coverage area when other unwanted interfering signal exists at any other frequency.

## 7.7B.3\_1.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 4 DL CCs.

#### 7.7B.3\_1.2.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.7B.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.7B.3 1.2.4 Test Description

#### 7.7B.3\_1.2.4.1 Initial condition

The initial conditions shall be the same as in clause 7.6B.3.3\_1.2.4.1 in order to test spurious responses obtained in clause 7.6B.3.3\_1.2 under the same conditions.

#### 7.7B.3\_1.2.4.2 Test procedure

- SS transmits PDSCH via PDCCH DCI format 1A and PDCCH DCI format 1\_1 for C\_RNTI to transmit the DL RMC according to Table 7.6B.3.3\_1.2.4.1-1 on E-UTRA CC and NR CC respectively. The SS sends downlink MAC padding bits on the DL RMC.
- 2. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to Table 7.6B.3.3\_1.2.4.1-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 3. Set the Downlink signal level to the value as defined in Table 7.7B.3\_1.2.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.7B.3\_1.2.5-1 +( [10log(S\_LCRB/NRB\_alloc)] for NR CC, [10log(P\_LCRB/NRB\_alloc)] for E-UTRA CC) for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW.
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].

- 4. Set the parameters of the CW signal generator for an interfering signal according to Table 7.7B.3\_1.2.5-1. The spurious frequencies are taken from records in the final step of test procedures in clause 7.6B.3.3\_1.2.4.2.
- 5. For each spurious frequency, Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex H.2.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

#### 7.7B.3 1.2.4.3 Message contents

Message contents are according to TS 38.508-1 [6] clause 4.6 Table 4.6.3-118 with condition TRANSFORM\_PRECODER\_ENABLED.

#### 7.7B.3 1.2.5 Test Requirement

The throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in TS 36.521-1 [10] Annex A.3 and TS 38.521-1 [8] Annex A.3 for E-UTRA CG and NR CG respectively with parameters specified in Table 7.7B.3\_1.2.5-1 for the specified wanted signal mean power in the presence of interfering signals.

Table 7.7B.3\_1.2.5-1: Spurious Response for intra-band contiguous EN-DC

	EN-DC Aggregated Bandwidth, MHz		>100, ≤120	>120, ≤140	>140, ≤160	
Pw ii	n Transmission	REFSENS	S + Aggregated	BW specific va	alue below	
	dth Configuration, perCC, dBm		,	9		
Pinter	rferer, dBm (CW)	(CW) -44				
	For NR carrier, the traminimum uplink configuration with PCMAX_L,f,c,NR as of For E-UTRA carrier, at the minimum uplin TS 36.101 [5] with Pccarrier.	guration speci defined in clau the transmitter k configuration	ified in Table 7. ise 6.2B.4. r shall be set to n specified in T	.3.2-3 in TS 38 4dB below Pc able 7.3.1-2 in	.101-1 [2]	

# 7.7E Spurious response for V2X in FR1

# 7.7E.0 Minimum conformance requirements

For intra-band V2X operation, the spurious response specified in clause 7.7.1G in TS 36.101 [5] and specified in clause 7.7E in TS 38.101-1 [2] apply when all SL reception CCs are activated at same time.

For the inter-band con-current NR V2X operation, the spurious response requirements shall be applied per each component carrier. The requirements specified in subclause 7.7E of TS 38.101-1 [2] shall apply for the NR sidelink reception in Band n47 and the requirements specified in subclause 7.7.1 of TS 36.101 [5] shall apply for the E-UTRA downlink reception in licensed band while all downlink carriers are active. The requirements specified in subclause 7.7.1G of TS 36.101 [5] shall apply for the E-UTRA sidelink reception and the requirements specified in subclause 7.7 of TS 38.101-1 [2] shall apply for the NR downlink reception while all downlink carriers are active.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.7E.

# 7.7E.1 Spurious response for V2X operation

#### 7.7E.1.1 Test purpose

Spurious response verifies the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the out of band blocking limit as specified in sub-clause 7.6E.2 is not met.

The lack of the spurious response ability decreases the coverage area when other unwanted interfering signal exists at any other frequency.

#### 7.7E.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. The requirements in this test case can be well covered in clause 7.7 and 7.7G of TS 36.521-1 [10] and clause 7.7 and 7.7E of TS 38.521-1 [8] and don't need to be tested again.

# 7.8 Void

# 7.8B Intermodulation characteristics for DC

## 7.8B.1 General

## 7.8B.2 Wide band Intermodulation

# 7.8B.2.0 Minimum Conformance Requirements

**EN-DC** Aggregated

## 7.8B.2.0.1 Intra-band contiguous EN-DC

Intra-band contiguous EN-DC wide band intermodulation requirement and parameters are defined in Table 7.8B.2.0.1-1.

Table 7.8B.2.0.1-1: Wide band intermodulation

≤100

>100, ≤120 | >120, ≤140 | >140, ≤160

Bandwidth, MHz	_100	7100, 2120	7120, 2140	7140, 2100		
Pw in Transmission Bandwidth Configuration, perCC, dBm	Pw <sup>1</sup>	16.8	17.5	18.0		
Pinterferer 1, dBm (CW) <sup>2</sup>	-46					
P <sub>interferer 2</sub> , dBm (Modulated) <sup>2</sup>	-46					
NOTE 1: Pw is wanted signal p	NOTE 1: Pw is wanted signal power level from Table 7.8.1A-1 in TS 36.101 [5]					
NOTE 2: Jammer BW and offs						
lowest edge of the lo	west carrier ar	nd the highest (	edge of the hig	hest carrier		
NOTE 3: For NR carrier, the tr	ansmitter shal	I be set to 4dB	below PCMAX_L	<sub>f,c</sub> at the		
minimum uplink conf	iguration spec	ified in Table 7	.3-3 with Pcmax	C_L,f,c <b>as</b>		
defined in clause 6.2	defined in clause 6.2B.4.					
NOTE 4: For E-UTRA carrier,	For E-UTRA carrier, the transmitter shall be set to 29dB below P <sub>CMAX_L,c</sub> at					
the minimum uplink configuration specified in Table 7.3-1-2 with PCMAX_L,c as						
defined in clause 6.2	defined in clause 6.2B.4 for single carrier.					

The normative reference for this requirement is TS 38.101-3 [4] clause 7.8B.2.1.

#### 7.8B.2.0.2 Intra-band non-contiguous EN-DC

For the E-UTRA sub-block containing one or multiple CC's, the requirement is defined in clause 7.8.1 for single carrier operation and in clause 7.8.1A for CA in TS 36.101 [5].

For the NR sub-block, the requirement is defined in clause 7.8.2 in TS 38.101-1 [2].

The blocker configuration is defined in the general clause 7.1 and the requirement only apply for out of gap interferers.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.8B.2.2.

#### 7.8B.2.0.3 Inter-band EN-DC within FR1

Wide band Intermodulation requirement for E-UTRA single carrier and CA operation specified in clauses 7.8.1 and 7.8.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.8.2 and 7.8A.2 of TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.8B.2.3.

# 7.8B.2.0.4 Inter-band EN-DC including FR2

Wide band Intermodulation requirement for E-UTRA single carrier and CA operation specified in clauses 7.8.1 and 7.8.1A of TS 36.101 [5] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.8B.2.4.

### 7.8B.2.0.5 Inter-band EN-DC including both FR1 and FR2

Wide band Intermodulation requirement for E-UTRA single carrier and CA operation specified in clauses 7.8.1 and 7.8.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.8.2 and 7.8A.2 of TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.8B.2.5.

# 7.8B.2.1 Wideband Intermodulation for intra-band contiguous EN-DC (2 CCs)

Editor's note: This clause is incomplete. The following aspects are either missing or not yet determined:

UL Power configuration is TBD

#### 7.8B.2.1.1 Test Purpose

Intermodulation response tests the UE's ability to receive data with a given average throughput for a specified reference measurement channel, in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal, under conditions of ideal propagation and no added noise.

A UE unable to meet the throughput requirement under these conditions will decrease the coverage area when two or more interfering signals exist which have a specific frequency relationship to the wanted signal.

#### 7.8B.2.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.8B.2.1.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.8B.2.0.1.

Exception requirements for both NR and E-UTRA are defined for this test and therefore LTE anchor agnostic approach is not applied. E-UTRA test point analysis is included and E-UTRA measurements are performed.

#### 7.8B.2.1.4 Test Description

## 7.8B.2.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.3B.1.2, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 7.8B.2.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 7.8B.2.1.4.1-1: Test configuration table

	Initial Conditions						
Test Environr	Test Environment as specified in TS 38.508-			Normal			
1 [6] clause 4							
Test Frequen				Mid range			
		4.3.1 for differe	nt EN-				
DC bandwidth							
		combination as		Lowest N <sub>RB</sub> a	aa. Highest N	RB ann	
		1.2-1 across ba	andwidth	(NOTE 3)	gg, 1 11 <b>9</b> 11001 1 1	IND_agg	
		rted by the UE		,			
		ed in Table 5.3	.5-1 in	Highest			
TS 38.521-1	[8]		\/E				
-			K/E-UIRA	Test Paramete	_		
		onfiguration	E	N.D.	Uplink Col	nfiguration	D.4
NR Modulation	NR RB	E-UTRA Modulation	E-UTRA RB	NR Modulation	NR RB	E-UTRA Modulation	E-UTRA RB
Wodulation	anocation	Wodulation	allocation		allocation	Wiodulation	allocation
			anocation	DFT-s-			anocation
CP-OFDM	Full RB	QPSK	Full RB	OFDM	REFSENS	QPSK	REFSENS
QPSK	(NOTE 1)	QI OIX	I dii KB	QPSK	INEI OLIVO	QI OIX	INEI OLIVO
NOTE 1: Fu	ıll RB alloc	ı ation shall he ı	ised ner ea		hannel BW a	s specified in T	able
		TS 38.521-1 [		ion oco ana o		o opcomod m i	abio
				separately for	each E-UTR	A band, which	applicable
				ble 5.3B.1.2-1.		,	
						uration with the	e same
				nighest NRB_S			
NOTE 4: REFSENS refers to Uplink configuration in Table 7.3.2-3 in [8] and Table 7.3.3-2 in [10] for							
	NR and E-UTRA CC respectively.						
						test shall be pe	
on	Landella Alban	antannaa nart	a aannaata	4 and 4Dy DEF	-CENIC *****	romont /TC 20	E01 4 [0]
only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.							

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.1.4.3.

#### 7.8B.2.1.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 7.8B.2.1.4.1-1 on E-UTRA CC and NR CC

respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.

- 2. Set the Downlink signal level to the value as defined in Table 7.8B.2.1.5-1. For NR CC and E-UTRA CC, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to -(MU + Uplink power control window size) dB of the target power level in Table 7.8B.2.1.5-1 for at least the duration of the Throughput measurement, where:
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW.
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size. and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- 3. Set the Interfering signal levels to the values as defined in Table 7.8B.2.1.5-1 and frequency below the wanted signal
- 4. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex G.2.
- 5. Repeat steps from 2 to 4, using an interfering signal above the wanted signal at step 3.

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

#### 7.8B.2.1.4.3 Message contents

Message contents are according to TS 38.508-1 [5] clause 4.6 with DFT-s-OFDM condition in Table 4.6.3-118 PUSCH-Config.

#### 7.8B.2.1.5 Test Requirement

The throughput shall be  $\geq 95\%$  of the maximum throughput of the reference measurement channels as specified in Annex A.3.2 with parameters specified in Table 7.8B.2.1.5-1 for the specified wanted signal mean power in the presence of two interfering signals.

Table 7.8B.2.1.5-1: Wide band intermodulation

EN-DC Aggregated Bandwidth, MHz	≤100	>100, ≤120	>120, ≤140	>140, ≤160		
Pw in Transmission Bandwidth Configuration, perCC, dBm	P <sub>W</sub> <sup>1</sup>	16.8	17.5	18.0		
Pinterferer 1, dBm (CW) <sup>2</sup>	-46					
Pinterferer 2, dBm (Modulated) <sup>2</sup>	-46					

NOTE 1: P<sub>W</sub> is wanted signal power level from Table 7.8.1A-1 in TS 36.101 [5]

NOTE 2: Jammer BW and offsets is from Table 7.8.1A-1 in TS 36.101 [5] and is applied from the lowest edge of the lowest carrier and the highest edge of the highest carrier

NOTE 3: For NR carrier, the transmitter shall be set to 4dB below  $P_{CMAX\_L,f,c}$  at the minimum uplink configuration specified in Table 7.3-3 with  $P_{CMAX\_L,f,c}$  as defined in clause 6.2.4 from [2].

NOTE 4: For E-UTRA carrier, the transmitter shall be set to 29dB below  $P_{CMAX\_L,c}$  at the minimum uplink configuration specified in Table 7.3-1-2 with  $P_{CMAX\_L,c}$  as defined in clause 6.2.5 for single carrier and in Table 7.3-1A-1 with  $P_{CMAX\_L}$  as defined in clause 6.2.5A for LTE-CA from TS 36.101 [5].

#### Table 7.8B.2.1.5-2: Void

## 7.8B.2.2 Wideband Intermodulation for intra-band non-contiguous EN-DC (2 CCs)

#### 7.8B.2.2.1 Test Purpose

Same test purpose as in clause 7.8.2.1 in TS 38.521-1 [8] for the NR carrier.

# 7.8B.2.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.8B.2.2.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.8B.2.0.2.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.8B.2.2.4 Test Description

Same test description as in clause 7.8.2.4 in TS 38.521-1 [8] with the following exceptions:

# Table 7.8B.2.2.4-1: Test Configuration Table

Initial Conditions							
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes  High range with maxWGap							
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 1)						
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same  NRB agg, only the combination with the highest NRB SCG is tested.							

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 7.9B.2.4-1.

For Initial conditions as in clause 7.8.2.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of Initial conditions as in clause 7.8.2.4.2 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

Step 4 of Test procedure is replaced by:

4. Set the Interfering signal levels to the values as defined in Table 7.8.2.5-1 and frequency at the out-of-gap of the sub-blocks.

Step 6 of Test procedure is removed.

#### 7.8B.2.2.5 Test Requirement

Same test requirement as in clause 7.8.2.5 in TS 38.521-1 [8].

# 7.8B.2.3 Wideband Intermodulation for inter-band EN-DC within FR1 (2 CCs)

### 7.8B.2.3.1 Test Purpose

Same test purpose as in clause 7.8.2.1 in TS 38.521-1 [8] for the NR carrier.

# 7.8B.2.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 2 DL CCs.

#### 7.8B.2.3.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.8B.2.0.3.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

#### 7.8B.2.3.4 Test Description

Same test description as in clause 7.8.2.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.8.2.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of Initial conditions as in clause 7.8.2.4.2 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

#### 7.8B.2.3.5 Test Requirement

Same test requirement as in clause 7.8.2.5 in TS 38.521-1 [8].

## 7.8B.2.3\_1 Wideband Intermodulation for EN-DC within FR1 (>2 CCs)

#### 7.8B.2.3\_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)

Editor's note: The following aspects are either missing or not yet determined:

- Test configuration for DC\_(n)XAA-nYA, DC\_XA-(n)YAA, DC\_XA-nXA-nYA, DC\_XA-YA\_nYA is missing in Table 7.8B.2.3\_1.1.4.1-1.

#### 7.8B.2.3\_1.1.1 Test Purpose

Intermodulation response tests the UE's ability to receive data with a given average throughput for a specified reference measurement channel, in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal, under conditions of ideal propagation and no added noise.

A UE unable to meet the throughput requirement under these conditions will decrease the coverage area when two or more interfering signals exist which have a specific frequency relationship to the wanted signal.

#### 7.8B.2.3\_1.1.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC within FR1 (3 CCs).

#### 7.8B.2.3\_1.1.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.8B.2.0.

#### 7.8B.2.3\_1.1.4 Test Description

#### 7.8B.2.3\_1.1.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.2, 5.5B.3, and 5.5B.4, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.5B.2, 5.5B.3, and 5.5B.4 and are shown in table 7.8B.2.3\_1.1.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 7.8B.2.3\_1.1.4.1-1: Test configuration table

Initial Conditions						
Test Environment as specified in TS 38.508-1 [6] clause 4.1					Normal	
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes					Mid range	
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE					Highest N <sub>RB_agg</sub>	
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]					Highest	
Network signalling	value				NS_01 by default	
	T	Test Param	eters for EN-DO	C Configu	rations	
EN-DC Configurations	Environment	Frequency	Bandwidth Combination	scs	Other Parameter Settings	
DC_(n)XCA	Default	Default	Default	Default	As per DC_(n)XCA in Table 7.3B.2.3_1.1.4.1-0	
DC_XC-nXA	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.2)	
DC_XA_XA-nXA	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.2)	
DC_XA_nYC	Default	Default	Default	Default	As per DC_XA-nYC in Table 7.3B.2.3_1.14.1-0	
DC_XA_nY(2A)	Default	Default	Default	Default	As per DC_XA_nY(2A) in Table 7.3B.2.3_1.14.1-0	
DC_XA_nYA-nZA	Default	Default	Default	Default	As per DC_XA_nYA-nZA in Table 7.3B.2.3_1.14.1-0	
DC_XC_nYA	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.3)	
DC_XA-XA_nYA	-	-	-	ı	No test required (LTE 1CC fallback is tested in 7.8B.2.3)	
DC_XA-YA_nZA	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.3)	
NOTE 1: Void  NOTE 2: Void  NOTE 3: Void  NOTE 4: X, Y and Z in this table correspond to different bands i.e. X != Y != Z  NOTE 5: The band combinations with difference appearance order of bands/sub-blocks in the band combination string are not distinguished. E.g. DC_YA-(n)XAA represents the set of DC_YA-(n)XAA and DC_(n)XAA-YA  NOTE 6: In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected						

1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2 for UE diagram.

and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.

- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.1.4.3.
- 7. For the E-UTRA CC(s) where anchor agnostic apply according to NOTE 1 in Table 7.3B.2.3\_1.1.4.1-0, downlink signal level and uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10]. Disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.8B.2.3\_1.1.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 7.8B.2.3\_1.1.4.2-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Set the Downlink signal level to the value as defined in Table 7.8B.2.3\_1.1.4.2-1. For E-UTRA CC and NR CC where uplink is allocated according to Table 7.8B.2.3\_1.1.4.1-1, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to (MU + Uplink power control window size) dB of the 4dB below PCMAX\_L with PCMAX\_L as defined in clause 6.2B.4 for at least the duration of the Throughput measurement.
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW.
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than, or no less than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

- 3. Set the Interfering signal levels to the values as defined in Table 7.8B.2.3\_1.1.4.2-1 and frequency below the wanted signal.
- 4. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex G, clause G.2.
- 5. Repeat steps from 2 to 4, using an interfering signal above the wanted signal at step 3.
- 6. Repeat steps 2 to 5 for component carriers listed in Table 7.8B.2.3\_1.1.4.2-1.

Table 7.8B.2.3\_1.1.4.2-1: Test repetition and measurement configuration

DC configuration	Test parameters to select (NOTE 2)			
DC_(n)XCA	7.8B.2.1.5			
DC_XA_nYC	7.8B.2.3.5			
DC_XA_nY(2A)				
DC_XA_nYA-nZA				
NOTE 1: Void				
NOTE 2: The reference for the placement of the interferer signals is the centre frequency of the carrier closest to the				
interferer among the carriers throughput is measured on.				
NOTE 3: Measure throughput on DL allocated (	OTE 3: Measure throughput on DL allocated CC. Where there are multiple rows for a single Test point ID, the test			
is repeated for each row.				

### 7.8B.2.3\_1.1.4.3 Message contents

Message contents are according to TS 38.508-1 [5] clause 4.6 with DFT-s-OFDM condition in Table 4.6.3-118 PUSCH-Config.

#### 7.8B.2.3\_1.1.5 Test Requirement

The throughput shall be  $\geq 95\%$  of the maximum throughput of the reference measurement channels as specified in Annex A, clause A.3.2 with parameters specified in Table 7.8B.2.3\_1.1.4.2-1 for the specified wanted signal mean power in the presence of two interfering signals.

# 7.8B.2.3\_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)

#### 7.8B.2.3\_1.2.1 Test Purpose

Intermodulation response tests the UE's ability to receive data with a given average throughput for a specified reference measurement channel, in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal, under conditions of ideal propagation and no added noise.

A UE unable to meet the throughput requirement under these conditions will decrease the coverage area when two or more interfering signals exist which have a specific frequency relationship to the wanted signal.

#### 7.8B.2.3\_1.2.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC within FR1 (4 CCs).

#### 7.8B.2.3\_1.2.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.8B.2.0.

#### 7.8B.2.3\_1.2.4 Test Description

#### 7.8B.2.3\_1.2.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.2, 5.5B.3, and 5.5B.4, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 7.8B.2.3\_1.2.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

Table 7.8B.2.3\_1.2.4.1-1: Test configuration table

Initial Conditions						
Test Environment as sp	pecified in TS 38.	Normal				
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes					Mid range	
Test EN-DC bandwidth bandwidth combination		Highest N <sub>RB_agg</sub>				
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]					Highest	
Network signalling value NS_01 by default						
Test Parameters for EN-DC Configurations						
EN-DC Configurations	Environment	Frequency	Bandwidth Combination	scs	Other Parameter Settings	
DC_(n)XDA	Default	Default	Default	Default	As per DC_(n)XDA in Table 7.3B.2.3_1.2.4.1-1	
DC_XD_nXA	-	-	-	-	No test required (LTE 2CC fallback is tested in 7.8B.2.2)	
DC_XA-XC_nXA	-	-	-	ı	No test required (LTE 2CC fallback is tested in 7.8B.2.2)	
DC_XA_nY(2A)-nZA	Default	Default	Default	Default	As per DC_XA_nY(2A)-nZA in Table 7.3B.2.3_1.2.4.1-1	
DC_XA_nYA-nZC	Default	Default	Default	Default	As per DC_XA_nYA-nZC in Table 7.3B.2.3_1.2.4.1-1	
DC_XD_nYA DC_XA-YC_nZA DC_XA-XA-YA_nZA DC_XA-YA-ZA_nRA	-	-	-	-	No test required (LTE 2CC fallback is tested in 7.8B.2.2)	
DC_XC_nYC DC_XA-XA_nYC DC_XA-YA_nYC	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.3_1.1)	
DC_XC_nY(2A) DC_XA-XA_nY(2A) DC_XA-YA_nY(2A)	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.3_1.1)	
DC_XC_nYA-nZA DC_XA-XA_nYA-nZA DC_XA-YA_nZA-nRA	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.3_1.1)	
DC_XA-YA_(n)ZAA DC_XC_(n)YAA	-	-	-	1	No test required (LTE 2CC fallback is tested in 7.8B.2.2)	
DC_(n)XCA-nYA	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.3_1.1)	
DC_XA-YA-ZA_nZA	-	-	-	-	No test required (LTE 2CC fallback is tested in 7.8B.2.2)	
DC_XA-YA_nYA-nZA	-	-	-	-	No test required (LTE 1CC fallback is tested in 7.8B.2.3_1.1)	
NOTE 1: X, Y, Z and R in this table correspond to different bands i.e. X != Y != Z != R  NOTE 2: The band combinations with difference appearance order of bands/sub-blocks in the band combination string are not distinguished. E.g. DC_YA-(n)XAA represents the set of DC_YA-(n)XAA and DC_(n)XAA-YA						

NOTE 3: In a FR1 band where UE supports 4Rx, the test shall be performed only with 4Rx antennas ports connected and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.

- 1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2 for UE diagram.
- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.

- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.1.4.3.
- 7. For the E-UTRA CC(s) where anchor agnostic apply according to NOTE 4 in Table 7.3B.2.3\_1.2.4.1-1, downlink signal level and uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10]. Disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.8B.2.3 1.2.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 7.8B.2.3\_1.2.4.2-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Set the Downlink signal level to the value as defined in Table 7.8B.2.3\_1.2.4.2-1. For E-UTRA CC and NR CC where uplink is allocated according to Table 7.8B.2.3\_1.2.4.1-1, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to (MU + Uplink power control window size) dB of the 4dB below PCMAX\_L with PCMAX\_L as defined in clause 6.2B.4 for at least the duration of the Throughput measurement.
  - MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW.
  - For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
  - For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].
- NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than, or no less than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.
- 3. Set the Interfering signal levels to the values as defined in Table 7.8B.2.3\_1.2.4.2-1 and frequency below the wanted signal.
- 4. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex G, clause G.2.
- 5. Repeat steps from 2 to 4, using an interfering signal above the wanted signal at step 3.
- 6. Repeat steps 2 to 5 for component carriers listed in Table 7.8B.2.3\_1.2.4.2-1.

Table 7.8B.2.3\_1.2.4.2-1: Test repetition and measurement configuration

DC configuration	Test parameters to select (NOTE 1)				
DC_(n)XDA	7.8B.2.1.5				
DC_XA_nY(2A)-nZA	7.8B.2.3.5				
DC_XA_nYA-nZC					
NOTE 1: The reference for the placement of the interferer signals is the centre frequency of					
the carrier closest to the interferer among the carriers throughput is measured on.					
NOTE 2: Measure throughput on DL allocated CC. Where there are multiple rows for a					
single Test point ID, the test is repeated for each row.					

#### 7.8B.2.3\_1.2.4.3 Message contents

Message contents are according to TS 38.508-1 [5] clause 4.6 with DFT-s-OFDM condition in Table 4.6.3-118 PUSCH-Config.

# 7.8B.2.3\_1.2.5 Test Requirement

The throughput shall be  $\geq$  95% of the maximum throughput of the reference measurement channels as specified in Annex A, clause A.3.2 with parameters specified in Table 7.8B.2.3\_1.2.4.2-1 for the specified wanted signal mean power in the presence of two interfering signals.

## 7.8B.2.3\_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)

Editor's note: The Table 7.8B.2.3\_1.3.4.2-1 are either missing or not yet determined.

#### 7.8B.2.3\_1.3.1 Test Purpose

Intermodulation response tests the UE's ability to receive data with a given average throughput for a specified reference measurement channel, in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal, under conditions of ideal propagation and no added noise.

A UE unable to meet the throughput requirement under these conditions will decrease the coverage area when two or more interfering signals exist which have a specific frequency relationship to the wanted signal.

#### 7.8B.2.3\_1.3.2 Test Applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC within FR1 (5 CCs).

#### 7.8B.2.3\_1.3.3 Minimum Conformance Requirements

The minimum conformance requirements are defined in clause 7.8B.2.0.

## 7.8B.2.3\_1.3.4 Test Description

## 7.8B.2.3\_1.3.4.1 Initial condition

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies and channel bandwidths based on EN-DC operating bands specified in clause 5.5B.2, 5.5B.3, and 5.5B.4, channel bandwidths and sub-carrier spacings for the NR cell specified in TS 38.521-1 [8] clause 5.3 and channel bandwidth for the E-UTRA cell are specified in TS 36.521-1 [10] clause 5.4.2. All of these configurations shall be tested with applicable test parameters for each EN-DC configuration specified in clause 5.3B.1.2 and are shown in table 7.8B.2.3\_1.3.4.1-1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in TS 36.521-1 [10] Annex C.2 and in TS 38.521-1 [8] Annex C.2 for E-UTRA CG and NR CG respectively.

#### Table 7.8B.2.3\_1.3.4.1-1: Test configuration table

Initial Conditions					
Test Environment as specified in TS 38.508-1 [6] clause 4.1				Normal	
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different EN-DC bandwidth classes					Mid range
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE				Highest N <sub>RB_agg</sub>	
NR Test SCS as specified in Table 5.3.5-1 in TS 38.521-1 [8]					Highest
Network signalling value NS_01 by default					
Test Parameters for EN-DC Configurations					
EN-DC	Environment	Frequency	Bandwidth	scs	Other Parameter Settings
Configurations		oquooy	Combination		<b>3</b>
Configurations DC_XA-XA-YC_nZA	-	-	Combination -	-	No test required (LTE 1CC fallback is tested in 7.8B.2.3_1.2)
-	-	-		-	No test required (LTE 1CC fallback is

1. Connect the SS to the UE antenna connectors as shown in [6] TS 38.508-1 A.3.1.2.1 for SS diagram and A.3.2 for UE diagram.

and 4Rx REFSENS requirement (TS 38.521-1 [8] Table 7.3.2.5-2) is used in the test requirements.

- 2. The parameter settings for the E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3, and the parameter settings for the NR cell are set up according to TS 38.508-1 [6] clause 4.4.3.
- 3. Downlink signals are initially set up according to TS 36.521-1 [10] Annex C.0 and TS 38.521-1 [8] Annex C.0 for E-UTRA CG and NR CG respectively, and uplink signals according to TS 36.521-1 [10] Annex H and TS 38.521-1 [8] Annex G for E-UTRA CG and NR CG respectively.
- 4. The UL Reference Measurement channels are TS 36.521-1 [10] Annex A.2 and TS 38.521-1 [8] Annex A.2 for E-UTRA CG and NR CG respectively.
- 5. Propagation conditions are set according to TS 36.521-1 [10] Annex B.0 and TS 38.521-1 [8] Annex B.0 for E-UTRA CG and NR CG respectively.
- 6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer *MCG* and *SCG*, Connected without release *On* according to TS 38.508-1 [6] clause 4.5. Message contents are defined in clause 6.2B.1.1.4.3.
- 7. For the E-UTRA CC(s) where anchor agnostic apply according to NOTE 4 in Table 7.3B.2.3\_1.2.4.1-1, downlink signal level and uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B, clause B.0 of TS 36.521-1 [10]. Disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

#### 7.8B.2.3\_1.3.4.2 Test procedure

- SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0 and DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to table 7.8B.2.3\_1.3.4.2-1 on E-UTRA CC and NR CC respectively. Since the UL has no payload and no loopback data to send the UE sends uplink MAC padding bits on the UL RMC.
- 2. Set the Downlink signal level to the value as defined in Table 7.8B.2.3\_1.3.4.2-1. For E-UTRA CC and NR CC where uplink is allocated according to Table 7.8B.2.3\_1.3.4.1-1, send uplink power control commands to the UE using 1dB power step size to ensure that the UE output power measured by the test system is within the Uplink power control window, defined as -MU to (MU + Uplink power control window size) dB of the 4dB below PCMAX\_L with PCMAX\_L as defined in clause 6.2B.4 for at least the duration of the Throughput measurement.

- MU is the test system uplink power measurement uncertainty and is specified in Table F.1.3-1 for the carrier frequency f and the channel bandwidth BW.
- For NR CC, Uplink power control window size = 1dB (UE power step size) + 0.7dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 38.101-1 [2], Table 6.3.4.3-1 and is 0.7dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1.
- For E-UTRA CC, Uplink power control window size = 1dB (UE power step size) + 1.0dB (UE power step tolerance) + (Test system relative power measurement uncertainty), where, the UE power step tolerance is specified in TS 36.101 [5], Table 6.3.5.2.1-1 and is 1.0dB for 1dB power step size, and the Test system relative power measurement uncertainty is specified in Table F.1.2-1 of TS 36.521-1 [10].

NOTE: The purpose of the Uplink power control window is to ensure that the actual UE output power is no greater than, or no less than the target power level, and as close as possible to the target power level. The relationship between the Uplink power control window, the target power level and the corresponding possible actual UE Uplink power window is illustrated in Annex F, clause F.4.

- 3. Set the Interfering signal levels to the values as defined in Table 7.8B.2.3\_1.3.4.2-1 and frequency below the wanted signal.
- 4. Measure the average throughput for a duration sufficient to achieve statistical significance according to Annex G, clause G.2.
- 5. Repeat steps from 2 to 4, using an interfering signal above the wanted signal at step 3.
- 6. Repeat steps 2 to 5 for component carriers listed in Table 7.8B.2.3\_1.3.4.2-1.

#### Table 7.8B.2.3\_1.3.4.2-1: Test repetition and measurement configuration

**FFS** 

#### 7.8B.2.3\_1.3.4.3 Message contents

Message contents are according to TS 38.508-1 [5] clause 4.6 with DFT-s-OFDM condition in Table 4.6.3-118 PUSCH-Config.

#### 7.8B.2.3\_1.3.5 Test Requirement

The throughput shall be  $\geq 95\%$  of the maximum throughput of the reference measurement channels as specified in Annex A, clause A.3.2 with parameters specified in Table 7.8B.2.3\_1.3.4.2-1 for the specified wanted signal mean power in the presence of two interfering signals.

# 7.8B.2.3\_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)

**TBD** 

# 7.8B.2.3a Wideband Intermodulation for inter-band NE-DC within FR1 (2 CCs)

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 7.8.2 and 7.8.2 of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 7.8.1 and 7.8.1A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

7.8B.2.4 to 7.8B.2.9 Void

# 7.8E Intermodulation characteristics for V2X operation in FR1

# 7.8E.1 Wide band Intermodulation for V2X

# 7.8E.1.0 Minimum conformance requirements

For intra-band V2X operation, the intermodulation characteristics specified in clause 7.8.1G in TS 36.101 [5] and specified in clause 7.8E in TS 38.101-1 [2] apply when all SL reception CCs are activated at same time.

For inter-band NR V2X con-current operation, the intermodulation characteristics requirements shall be applied per each component carrier. The wideband inter-modulation requirement specified in clause 7.8E in TS 38.101-1 [2] shall apply on NR V2X carrier and the requirement specified in clause 7.8.1 in TS 36.101 [5] shall apply on E-UTRA downlink reception in licensed band while all downlink carriers are active. The requirements specified in subclause 7.8.1G of TS 36.101 [5] shall apply for the E-UTRA sidelink reception and the requirements specified in subclause 7.8 of TS 38.101-1 [2] shall apply for the NR downlink reception while all downlink carriers are active.  $P_{Interferer}$  power is increased by  $\Delta R_{IB,c}$  in the requirement.

### 7.8E.1.1 Wide band Intermodulation for V2X operation

#### 7.8E.1.1.1 Test purpose

Intermodulation response tests the UE's ability to receive data with a given average throughput for a specified reference measurement channel, in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal, under conditions of ideal propagation and no added noise.

A UE unable to meet the throughput requirement under these conditions will decrease the coverage area when two or more interfering signals exist which have a specific frequency relationship to the wanted signal.

#### 7.8E.1.1.2 Test applicability

No exception requirements applicable to NR V2X operation or E-UTRA V2X operation. The requirements in this test case can be well covered in clause 7.8.1 and 7.8.1G of TS 36.521-1 [10] and clause 7.8.2 and 7.8E.2 of TS 38.521-1 [8] and don't need to be tested again.

## 7.9 Void

# 7.9B Spurious emissions for DC

# 7.9B.0 Minimum Conformance Requirements

## 7.9B.0.1 Intra-band contiguous EN-DC

The requirement is defined in clause 7.9A.1 in TS 38.101-1 [2].

The normative reference for this requirement is TS 38.101-3 [4] clause 7.9B.1.

# 7.9B.0.2 Intra-band non-contiguous EN-DC

Spurious emissions requirement for E-UTRA single carrier and CA operation specified in clauses 7.9.1 and 7.9.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.9 and 7.9A of TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.9B.2.

#### 7.9B.0.3 Inter-band EN-DC within FR1

E-UTRA requirements from TS 36.101 [5] and NR requirements from TS 38.101-1 [2] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.9B.3.

## 7.9B.0.4 Inter-band EN-DC including FR2

Spurious emissions requirement for E-UTRA single carrier and CA operation specified in clauses 7.9.1 and 7.9.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clause 7.9 of TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.9B.4.

# 7.9B.0.5 Inter-band EN-DC including both FR1 and FR2

Spurious emissions requirement for E-UTRA single carrier and CA operation specified in clauses 7.9.1 and 7.9.1A of TS 36.101 [5] and for NR single carrier and CA operation specified in clauses 7.9 and 7.9A of TS 38.101-1 [2] and TS 38.101-2 [3] apply.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.9B.5.

# 7.9B.1 Spurious Emissions for intra-band contiguous EN-DC (2 CCs)

#### 7.9B.1.1 Test purpose

Same test purpose as in clause 7.9.1 in TS 38.521-1 [8] for the NR carrier.

#### 7.9B.1.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band contiguous EN-DC in FR1 with 2 DL CCs.

#### 7.9B.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.9B.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

# 7.9B.1.4 Test description

Same test description as in clause 7.9.4 in TS 38.521-1 [8] with the following exceptions:

Table 7.9B.1.4-1: Test Configuration Table

nge
t N <sub>RB_agg</sub> (NOTE 1)

NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB\_agg, only the combination with the highest NRB\_SCG is tested.

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 7.9B.1.4-1.

For Initial conditions as in clause 7.9.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of Initial conditions as in clause 7.9.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

#### 7.9B.1.5 Test requirement

Same test requirement as in clause 7.9.5 in TS 38.521-1 [8].

# 7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC (2 CCs)

## 7.9B.2.1 Test purpose

Same test purpose as in clause 7.9.1 in TS 38.521-1 [8] for the NR carrier.

#### 7.9B.2.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting intra-band non-contiguous in FR1 with 2 DL CCs.

#### 7.9B.2.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.9B.0.3.

No exception requirements applicable to NR or LTE. LTE anchor agnostic approach is applied.

#### 7.9B.2.4 Test description

Same test description as in clause 7.9.4 in TS 38.521-1 [8] with the following exceptions:

Table 7.9B.2.4-1: Test Configuration Table

Initial Conditions					
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different DC bandwidth classes	MaxWGap				
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 1)				
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB agg, only the combination with the highest NRB SCG is tested.					

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 7.9B.2.4-1.

For Initial conditions as in clause 7.9.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of Initial conditions as in clause 7.9.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

#### 7.9B.2.5 Test requirement

Same test requirement as in clause 7.9.5 in TS 38.521-1 [8].

# 7.9B.3 Spurious Emissions for inter-band EN-DC within FR1 (1 NR CC)

#### 7.9B.3.1 Test purpose

Same test purpose as in clause 7.9.1 in TS 38.521-1 [8] for the NR carrier.

#### 7.9B.3.2 Test applicability

This test case applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC within FR1 with 1 NR DL CC.

#### 7.9B.3.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.9B.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.9B.3.4 Test description

Same test description as in clause 7.9.4 in TS 38.521-1 [8] for the NR carrier with the following exceptions:

The initial test configurations for E-UTRA consist of test frequency based on E-UTRA operating band and test channel bandwidth as specified in Table 4.6-1.

For Initial conditions as in clause 7.9.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of Initial conditions as in clause 7.9.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

#### 7.9B.3.5 Test requirement

Same test requirement as in clause 7.9.5 in TS 38.521-1 [8].

# 7.9B.3\_1 Spurious Emissions for EN-DC within FR1 (>2 CCs)

# 7.9B.3\_1.1 Spurious Emissions for EN-DC within FR1 (3 CCs)

#### 7.9B.3\_1.1.1 Test purpose

Same test purpose as in clause 7.9B.1.

#### 7.9B.3\_1.1.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting EN-DC within FR1 with 3CCs(1 LTE CC + 2 Inter-band NR CCs with a DL-only NR band).

#### 7.9B.3\_1.1.3 Minimum conformance requirements

The minimum conformance requirements are defined in clause 7.9B.0.3.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

#### 7.9B.3\_1.1.4 Test description

Same test description as in clause 7.9.4 or 7.9.A.1.4 in TS 38.521-1 [8] with the following exceptions:

Table 7.9B.1.4-1: Test Configuration Table

Initial Conditions				
Test Frequencies as specified in TS 38.508-1 [6] clause 4.3.1 for different DC bandwidth classes.	Mid range			
Test EN-DC bandwidth combination as specified in Table 5.3B.1.2-1 across bandwidth combination sets supported by the UE	Highest N <sub>RB_agg</sub> (NOTE 1)			
NOTE 1: If the UE supports multiple CC Combinations in the EN-DC Configuration with the same NRB agg , only the combination with the highest NRB SCG is tested.				

The initial test configurations for E-UTRA as specified in Table 4.6-1 except for the parameters specified in Table 7.9B.1.4-1.

For Initial conditions as in clause 7.9.4.1 or 7.9A.1.4.1 in TS 38.521-1 [8], the following steps are added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.6-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].
- 7. On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.6-1 under clause 4.6.

Step 6 of Initial conditions as in clause 7.9.4.1 or 7.9A.1.4.1 in TS 38.521-1 [8] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release *On* according to TS 38.508 [6] clause 4.5.

#### 7.9B.3\_1.1.5 Test requirement

Same test requirement as in clause 7.9.5 in TS 38.521-1 [8].

# 7.9B.3a Spurious Emissions for inter-band NE-DC within FR1 (2 CCs)

No exception requirements applicable to NR or E-UTRA.

No test case details are specified. The requirements for NR carrier(s) in this test case are tested in 7.9 and 7.9A of TS 38.521-1 [8], and the requirements for LTE carrier(s) in this test case are tested in 7.9 and 7.9A of TS 36.521-1 [10]. Neither NR carrier(s) nor LTE carrier(s) needs to be tested again.

# 7.9B.4 Spurious Emissions for inter-band EN-DC including FR2 (1 NR CC)

Editor's note: The following aspects are either missing or not yet determined:

- The testability of this test case is pending further analysis on relaxation of the requirement for band other than n257, n258, n260 and n261.
- Measurement Uncertainties and Test Tolerances are FFS for power class 1, 2, and 4.

#### 7.9B.4.1 Test purpose

Same test purpose as in clause 7.9.1 in TS 38.521-2 [9] for the NR carrier.

#### 7.9B.4.2 Test applicability

This test applies to all types of E-UTRA UE release 15 and forward, supporting inter-band EN-DC including FR2 with 1 NR DL CC.

## 7.9B.4.3 Minimum conformance requirements

Same minimum conformance requirements as in clause 7.9.3 in TS 38.521-2 [9] for the NR carrier.

No exception requirements applicable to NR or E-UTRA. LTE anchor agnostic approach is applied.

The normative reference for this requirement is TS 38.101-3 [4] clause 7.9B.4.

#### 7.9B.4.4 Test description

Same test description as in clause 7.9.4 in TS 38.521-2 [9] for the NR carrier with the following exception:

The initial test configurations for E-UTRA band consist of environmental conditions, test frequencies, and channel bandwidths based on E-UTRA bands specified in Table 4.7-1.

For initial conditions as in clause 7.9.4.1 in TS 38.521-2 [9], the following steps will be added to configure E-UTRA component:

- 2.1. The parameter settings for E-UTRA cell are set up according to TS 36.508 [11] clause 4.4.3.
- 3.1. The E-UTRA downlink signal level, uplink signal level are set according to Table 4.7-1 and propagation conditions are set according to Annex B.0 of TS 36.521-1 [10].

Step 6 of Initial conditions as in clause 7.9.4.1 in TS 38.521-2 [9] is replaced by:

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity EN-DC, DC bearer MCG and SCG, Connected without release On according to TS 38.508-1 [6] clause 4.5.

Same test procedure as in clause 7.9.4.1 in TS 38.521-2 [9] with the following steps added for E-UTRA component:

1.1 On the E-UTRA carrier, disable periodic and aperiodic CQI reports, disable SRS, set *TimeAlignmentTimerDedicated* IE to infinity and disable downlink and uplink scheduling, all as per Table 4.7-1 under clause 4.7.

#### 7.9B.4.5 Test requirements

Same test requirement as in clause 7.9.5 in TS 38.521-2 [9] for the NR carrier.

# 7.9B.5 Spurious Emissions for inter-band EN-DC including both FR1 and FR2 (3 CCs)

TBD

# Annex A (normative): Measurement Channels

Please refer to Annex A in TS 38.521-1 [8] and 38.521-2 [9] for appropriate details as needed for test cases in this test specification. EN-DC exceptions will be added.

# A.1 General

The throughput values defined in the measurement channels specified in Annex A, are calculated and are valid per datastream (codeword). For multi-stream (more than one codeword) transmissions, the throughput referenced in the minimum requirements is the sum of throughputs of all datastreams (codewords).

The UE category entry in the definition of the reference measurement channel in Annex A is only informative and reveals the UE categories, which can support the corresponding measurement channel. Whether the measurement channel is used for testing a certain UE category or not is specified in the individual minimum requirements.

# A.2 UL reference measurement channels for E-UTRA TDD Config 2

# A.2.1 General

The measurement channels in the following clauses are defined to derive the requirements in clause 6 (Transmitter Characteristics) and clause 7 (Receiver Characteristics). The measurement channels represent example configurations of physical channels for different data rates.

#### A.2.2 Reference measurement channels for E-UTRA

#### A.2.2.1 Full RB allocation

#### A.2.2.1.1 QPSK

Table A.2.2.1.1-1: Reference Channels for QPSK with full RB allocation

Parameter										
Channel bandwidth	MHz	1.4	3	5	10	15	20			
Allocated resource blocks		6	15	25	50	75	100			
Uplink-Downlink Configuration (Note 2)		2	2	2	2	2	2			
Special subframe configuration (Note 3)		7	7	7	7	7	7			
DFT-OFDM Symbols per Sub-Frame		12	12	12	12	12	12			
Modulation		QPSK	QPSK	QPSK	QPSK	QPSK	QPSK			
Target Coding rate		1/3	1/3	1/3	1/3	1/5	1/6			
Payload size										
For Sub-Frame 2,7	Bits	600	1544	2216	5160	4392	4584			
Transport block CRC	Bits	24	24	24	24	24	24			
Number of code blocks per Sub-Frame										
(Note 1)										
For Sub-Frame 2,7		1	1	1	1	1	1			
Total number of bits per Sub-Frame										
For Sub-Frame 2,7	Bits	1728	4320	7200	14400	21600	28800			
Total symbols per Sub-Frame										
For Sub-Frame 2,7		864	2160	3600	7200	10800	14400			
UE Category		≥ 1	≥ 1	≥ 1	≥ 1	≥ 1	≥ 1			

Note 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)

Note 2: As per Table 4.2-2 in TS 36.211 [13] Note 3: As per Table 4.2-1 in TS 36.211 [13]

#### A.2.2.1.2 16-QAM

Table A.2.2.1.2-1: Reference Channels for 16-QAM with full RB allocation

Parameter	Unit			Va	lue		
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (Note 2)		2	2	2	2	2	2
Special subframe configuration (Note 3)		7	7	7	7	7	7
DFT-OFDM Symbols per Sub-Frame		12	12	12	12	12	12
Modulation		16QAM	16QAM	16QAM	16QAM	16QAM	16QAM
Target Coding rate		3/4	1/2	1/3	3/4	1/2	1/3
Payload size							
For Sub-Frame 2,7	Bits	2600	4264	4968	21384	21384	19848
Transport block CRC	Bits	24	24	24	24	24	24
Number of code blocks per Sub-Frame							
(Note 1)							
For Sub-Frame 2,7		1	1	1	4	4	4
Total number of bits per Sub-Frame							
For Sub-Frame 2,7	Bits	3456	8640	14400	28800	43200	57600
Total symbols per Sub-Frame							
For Sub-Frame 2,7		864	2160	3600	7200	10800	14400
UE Category		≥ 1	≥ 1	≥ 1	≥ 2	≥2	≥ 2

Note 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)

#### A.2.2.1.3 64-QAM

Table A.2.2.1.3-1: Reference Channels for 64-QAM with full RB allocation

Parameter	Unit			Va	lue		
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (Note 2)		2	2	2	2	2	2
Special subframe configuration (Note 3)		7	7	7	7	7	7
DFT-OFDM Symbols per Sub-Frame		12	12	12	12	12	12
Modulation		64QAM	64QAM	64QAM	64QAM	64QAM	64QAM
Target Coding rate		3/4	3/4	3/4	3/4	3/4	3/4
Payload size							
For Sub-Frame 2,7	Bits	3752	9528	15840	31704	46888	63776
Transport block CRC	Bits	24	24	24	24	24	24
Number of code blocks per Sub-Frame							
(Note 1)							
For Sub-Frame 2,7		1	2	3	6	8	11
Total number of bits per Sub-Frame							
For Sub-Frame 2,7	Bits	5184	12960	21600	43200	64800	86400
Total symbols per Sub-Frame							
For Sub-Frame 2,7		864	2160	3600	7200	10800	14400
UE Category (Note 4)		5, 8	5, 8	5, 8	5, 8	5, 8	5, 8
UE UL Category (Note 4)		5, 8,	5, 8,	5, 8,	5, 8,	5, 8,	5, 8,
		13, 14	13, 14	13, 14	13, 14	13, 14	13, 14

Note 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each

Code Block (otherwise L = 0 Bit)

Note 2: As per Table 4.2-2 in TS 36.211 [13]

Note 3: As per Table 4.2-1 in TS 36.211 [13]

Note 4: If UE does not report UE UL category, then the applicability of reference channel is determined by UE category. If UE reports UE UL category, then the applicability of reference channel is determined by UE

UL category.

#### A.2.2.1.4 256 QAM

Table A.2.2.1.4-1: Reference Channels for 256 QAM with full RB allocation

Parameter	Unit			Va	lue		
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (Note 2)		2	2	2	2	2	2
Special subframe configuration (Note 3)		7	7	7	7	7	7
DFT-OFDM Symbols per Sub- Frame		12	12	12	12	12	12
Modulation		256QAM	256QAM	256QAM	256QAM	256QAM	256QAM
Target Coding rate		3/4	3/4	3/4	3/4	3/4	3/4
Payload size							
For Sub-Frame 2,7	Bits	5160	12960	21384	42368	63776	84760
Transport block CRC	Bits	24	24	24	24	24	24
Number of code blocks per Sub- Frame (Note 1)							
For Sub-Frame 2,7		1	3	4	8	11	15
Total number of bits per Sub- Frame							
For Sub-Frame 2,7	Bits	6912	17280	28800	57600	86400	115200
Total symbols per Sub-Frame							
For Sub-Frame 2,7		864	2160	3600	7200	10800	14400
UE UL Category		≥ 15	≥ 15	≥ 15	≥ 15	≥ 15	≥ 15

Note 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)

### A.2.2.2 Partial RB allocation

#### A.2.2.2.1 QPSK

Table A.2.2.2.1-1: Reference Channels for QPSK with partial RB allocation

Para meter	C h B W	Alloc ated RBs	UL-DL Configu ration (Note 2)	Special subfram e configu ration (Note 3)	DFT- OFD M Sym bols per Sub- Fram e	Mo d'n	Tar get Cod ing rate	Payl oad size for Sub- Fra me 2, 7	Trans port block CRC	Num ber of code bloc ks per Sub- Fra me (Not e 1)	Tota I num ber of bits per Sub- Fra me for Sub- Fra me 2, 7	Total sym bols per Sub- Fram e for Sub- Fram e 2, 7	UE Cate gory
Unit	M Hz							Bits	Bits		Bits		
	1. 4 - 20	1	2	7	12	QP SK	1/3	72	24	1	288	144	≥ 1
	1. 4 - 20	2	2	7	12	QP SK	1/3	176	24	1	576	288	≥ 1
	1. 4 - 20	3	2	7	12	QP SK	1/3	256	24	1	864	432	≥ 1
	1. 4 - 20	4	2	7	12	QP SK	1/3	392	24	1	1152	576	≥ 1
	1. 4 - 20	5	2	7	12	QP SK	1/3	424	24	1	1440	720	≥ 1
	3- 20	6	2	7	12	QP SK	1/3	600	24	1	1728	864	≥ 1
	3- 20	8	2	7	12	QP SK	1/3	808	24	1	2304	1152	≥ 1
	3- 20	9	2	7	12	QP SK	1/3	776	24	1	2592	1296	≥ 1
	3- 20	10	2	7	12	QP SK	1/3	872	24	1	2880	1440	≥ 1
	3- 20	12	2	7	12	QP SK	1/3	1224	24	1	3456	1728	≥ 1
	5- 20	15	2	7	12	QP SK	1/3	1320	24	1	4320	2160	≥ 1
	5- 20	16	2	7	12	QP SK	1/3	1384	24	1	4608	2304	≥ 1
	5- 20	18	2	7	12	QP SK	1/3	1864	24	1	5184	2592	≥ 1
	5- 20	20	2	7	12	QP SK	1/3	1736	24	1	5760	2880	≥ 1
	5- 20	24	2	7	12	QP SK	1/3	2472	24	1	6912	3456	≥ 1
	10 - 20	25	2	7	12	QP SK	1/3	2216	24	1	7200	3600	≥ 1
	10 - 20	27	2	7	12	QP SK	1/3	2792	24	1	7776	3888	≥ 1
	10 - 20	30	2	7	12	QP SK	1/3	2664	24	1	8640	4320	≥ 1
	10 - 20	32	2	7	12	QP SK	1/3	2792	24	1	9216	4608	≥ 1
	10 - 20	36	2	7	12	QP SK	1/3	3752	24	1	1036 8	5184	≥ 1

≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
≥ 1
66 66 66 66 66 66 66 66 66 66 66 66 66

Note 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)

#### A.2.2.2.2 16-QAM

Table A.2.2.2-1: Reference Channels for 16QAM with partial RB allocation

Para meter	C h B W	Alloc ated RBs	UL-DL Configu ration (Note 2)	Special subfra me configu ration (Note 3)	DFT- OFD M Sym bols per Sub- Fram e	Mod 'n	Tar get Cod ing rate	Payl oad size for Sub- Fra me 2, 7	Trans port block CRC	Num ber of cod e bloc ks per Sub- Fra me (Not e 1)	Tota I num ber of bits per Sub- Fra me for Sub- Fra me 2, 7	Total sym bols per Sub-Fram e for Sub-Fram e 2,	UE Cate gory
Unit	M Hz							Bits	Bits		Bits		
	1. 4 - 20	1	2	7	12	16Q AM	3/4	408	24	1	576	144	≥ 1
	1. 4 - 20	2	2	7	12	16Q AM	3/4	840	24	1	1152	288	≥ 1
	1. 4 - 20	3	2	7	12	16Q AM	3/4	1288	24	1	1728	432	≥ 1
	1. 4 - 20	4	2	7	12	16Q AM	3/4	1736	24	1	2304	576	≥ 1
	1. 4 - 20	5	2	7	12	16Q AM	3/4	2152	24	1	2880	720	≥ 1
	3- 20	6	2	7	12	16Q AM	3/4	2600	24	1	3456	864	≥ 1
	3- 20	8	2	7	12	16Q AM	3/4	3496	24	1	4608	1152	≥ 1
	3- 20	9	2	7	12	16Q AM	3/4	3880	24	1	5184	1296	≥ 1
	3- 20	10	2	7	12	16Q AM	3/4	4264	24	1	5760	1440	≥ 1
	3- 20	12	2	7	12	16Q AM	3/4	5160	24	1	6912	1728	≥ 1
	5- 20	15	2	7	12	16Q AM	1/2	4264	24	1	8640	2160	≥ 1
	5- 20	16	2	7	12	16Q AM	1/2	4584	24	1	9216	2304	≥ 1
	5- 20	18	2	7	12	16Q AM	1/2	5160	24	1	1036 8	2592	≥ 1
	5- 20	20	2	7	12	16Q AM	1/3	4008	24	1	1152 0	2880	≥ 1
	5- 20	24	2	7	12	16Q AM	1/3	4776	24	1	1382 4	3456	≥ 1
	10 - 20	25	2	7	12	16Q AM	1/3	4968	24	1	1440 0	3600	≥ 1
	10 - 20	27	2	7	12	16Q AM	1/3	4776	24	1	1555 2	3888	≥ 1
	10 - 20	30	2	7	12	16Q AM	3/4	1296 0	24	3	1728 0	4320	≥ 2
	10 - 20	32	2	7	12	16Q AM	3/4	1353 6	24	3	1843 2	4608	≥ 2
	10 - 20	36	2	7	12	16Q AM	3/4	1526 4	24	3	2073 6	5184	≥ 2

	_	1 _			1		1	1		1		
10	40	2	7	12	16Q AM	3/4	1699 2	24	3	2304 0	5760	≥ 2
10	45	2	7	12	16Q AM	3/4	1908 0	24	4	2592 0	6480	≥ 2
10	O 48	2	7	12	16Q AM	3/4	2061 6	24	4	2764 8	6912	≥ 2
15 - 20	50	2	7	12	16Q AM	3/4	2138 4	24	4	2880 0	7200	≥ 2
15 - 20	54	2	7	12	16Q AM	3/4	2292 0	24	4	3110 4	7776	≥ 2
15 - 20	60	2	7	12	16Q AM	2/3	2368 8	24	4	3456 0	8640	≥ 2
15 - 20	64	2	7	12	16Q AM	2/3	2545 6	24	4	3686 4	9216	≥ 2
15 - 20	72	2	7	12	16Q AM	1/2	2061 6	24	4	4147 2	1036 8	≥ 2
20	75	2	7	12	16Q AM	1/2	2138 4	24	4	4320 0	1080 0	≥ 2
20	08 0	2	7	12	16Q AM	1/2	2292 0	24	4	4608 0	1152 0	≥ 2
20	0 81	2	7	12	16Q AM	1/2	2292 0	24	4	4665 6	1166 4	≥ 2
20	90	2	7	12	16Q AM	2/5	2061 6	24	4	5184 0	1296 0	≥ 2
20	96	2	7	12	16Q AM	2/5	2215 2	24	4	5529 6	1382 4	≥ 2

Note 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)

A.2.2.2.3 64-QAM

Table A.2.2.3-1: Reference Channels for 64-QAM with partial RB allocation

Para meter	C h B W	Alloc ated RBs	UL-DL Config uration (Note 2)	Special subfra me configu ration (Note 3)	DFT- OFD M Sym bols per Sub- Fra me	Mo d'n	Tar get Cod ing rate	Payl oad size for Sub - Fra me 2, 7	Tra ns- por t blo ck CR C	Nu mbe r of cod e bloc ks per Sub - Fra me (Not e 1)	Tot al nu mbe r of bits per Sub - Fra me for Sub - Fra me 2, 7	Tota I sym bols per Sub- Fra me for Sub- Fra me 2, 7	UE Cate gory (Not e 4)	UE UL Cate gory (Not e 4)
Unit	M H z							Bits	Bits		Bits			
	1. 4 - 20	1	2	7	12	64Q AM	3/4	616	24	1	864	144	5,8	5, 8, 13, 14
	1. 4 - 20	2	2	7	12	64Q AM	3/4	125 6	24	1	172 8	288	5,8	5, 8, 13, 14
	1. 4 - 20	3	2	7	12	64Q AM	3/4	186 4	24	1	259 2	432	5,8	5, 8, 13, 14
	1. 4 - 20	4	2	7	12	64Q AM	3/4	253 6	24	1	345 6	576	5,8	5, 8, 13, 14
	1. 4 - 20	5	2	7	12	64Q AM	3/4	311 2	24	1	432 0	720	5,8	5, 8, 13, 14
	3- 20	6	2	7	12	64Q AM	3/4	375 2	24	1	518 4	864	5,8	5, 8, 13, 14
	3- 20	8	2	7	12	64Q AM	3/4	516 0	24	1	691 2	1152	5,8	5, 8, 13, 14
	3- 20	9	2	7	12	64Q AM	3/4	573 6	24	1	777 6	1296	5,8	5, 8, 13, 14
	3- 20	10	2	7	12	64Q AM	3/4	620 0	24	2	864 0	1440	5,8	5, 8, 13, 14
	3- 20	12	2	7	12	64Q AM	3/4	748 0	24	2	103 68	1728	5,8	5, 8, 13, 14
	5- 20	15	2	7	12	64Q AM	3/4	952 8	24	2	129 60	2160	5,8	5, 8, 13, 14
	5- 20	16	2	7	12	64Q AM	3/4	102 96	24	2	138 24	2304	5,8	5, 8, 13, 14
	5- 20	18	2	7	12	64Q AM	3/4	114 48	24	2	155 52	2592	5,8	5, 8, 13, 14
	5- 20	20	2	7	12	64Q AM	3/4	125 76	24	3	172 80	2880	5,8	5, 8, 13, 14
	5- 20	24	2	7	12	64Q AM	3/4	152 64	24	3	207 36	3456	5,8	5, 8, 13, 14
	10 - 20	25	2	7	12	64Q AM	3/4	158 40	24	3	216 00	3600	5,8	5, 8, 13, 14

	10 - 20	27	2	7	12	64Q AM	3/4	169 92	24	3	233 28	3888	5,8	5, 8, 13, 14
1	10	30	2	7	12	64Q AM	3/4	190 80	24	4	259 20	4320	5,8	5, 8, 13,
1	10 -	32	2	7	12	64Q AM	3/4	206 16	24	4	276 48	4608	5,8	14 5, 8, 13, 14
1	10 -	36	2	7	12	64Q AM	3/4	229 20	24	4	311 04	5184	5,8	5, 8, 13,
1	10 -	40	2	7	12	64Q AM	3/4	254 56	24	5	345 60	5760	5,8	14 5, 8, 13, 14 5, 8,
1	10 -	45	2	7	12	64Q AM	3/4	283 36	24	5	388 80	6480	5,8	13,
1	10 -	48	2	7	12	64Q AM	3/4	305 76	24	5	414 72	6912	5,8	14 5, 8, 13, 14
1	15 - 20	50	2	7	12	64Q AM	3/4	317 04	24	6	432 00	7200	5,8	14 5, 8, 13, 14
1	15 - 20	54	2	7	12	64Q AM	3/4	340 08	24	6	466 56	7776	5,8	5, 8, 13, 14 5, 8,
1	15 - 20	60	2	7	12	64Q AM	3/4	378 88	24	7	518 40	8640	5,8	5, 8, 13, 14
1	15 - 20	64	2	7	12	64Q AM	3/4	405 76	24	7	552 96	9216	5,8	5, 8, 13,
1	15 - 20	72	2	7	12	64Q AM	3/4	453 52	24	8	622 08	1036 8	5,8	14 5, 8, 13, 14
	20	75	2	7	12	64Q AM	3/4	468 88	24	8	648 00	1080 0	5,8	14 5, 8, 13, 14
2	20	80	2	7	12	64Q AM	3/4	510 24	24	9	691 20	1152 0	5,8	14 5, 8, 13, 14
2	20	81	2	7	12	64Q AM	3/4	510 24	24	9	699 84	1166 4	5,8	5, 8, 13, 14
2	20	90	2	7	12	64Q AM	3/4	510 24	24	9	777 60	1296 0	5,8	5, 8, 13, 14
2	20	96	2	7	12	64Q AM	3/4	616 64	24	11	829 44	1382 4	5,8	5, 8, 13, 14

Note 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each

Code Block (otherwise L = 0 Bit)

Note 2: As per Table 4.2-2 in TS 36.211 [13]

Note 3: As per Table 4.2-1 in TS 36.211 [13]

Note 4: If UE does not report UE UL category, then the applicability of reference channel is determined by UE category. If UE reports UE UL category, then the applicability of reference channel is determined by UE UL category

#### A.2.2.2.4 256 QAM

Table A.2.2.2.4-1: Reference Channels for 256 QAM with partial RB allocation

Para meter	СhвW	Alloc ated RBs	UL-DL Configu ration (Note 2)	Special Slot Configu ration (Note 3)	DFT- OFD M Sym bols per Sub- Fram e	Mod' n	Tar get Cod ing rate	Payl oad size for Sub- Fra me 2, 7	Tra ns- por t blo ck CR C	Num ber of code bloc ks per Sub- Fra me (Not e 1)	Tota I num ber of bits per Sub- Fra me for Sub- Fra me 2, 7	Total sym bols per Sub- Fram e for Sub- Fram e 2, 7	UE UL Cate gory
Unit	M Hz							Bits	Bits		Bits		
	1. 4 - 20	1	2	7	12	256Q AM	3/4	840	24	1	1152	144	≥ 15
	1. 4 - 20	2	2	7	12	256Q AM	3/4	1672	24	1	2304	288	≥ 15
	1. 4 - 20	3	2	7	12	256Q AM	3/4	2536	24	1	3456	432	≥ 15
	1. 4 - 20	4	2	7	12	256Q AM	3/4	3368	24	1	4608	576	≥ 15
	1. 4 - 20	5	2	7	12	256Q AM	3/4	4264	24	1	5760	720	≥ 15
	3- 20	6	2	7	12	256Q AM	3/4	5160	24	1	6912	864	≥ 15
	3- 20	8	2	7	12	256Q AM	3/4	6712	24	2	9216	1152	≥ 15
	3- 20	9	2	7	12	256Q AM	3/4	7736	24	2	1036 8	1296	≥ 15
	3- 20	10	2	7	12	256Q AM	3/4	8504	24	2	1152 0	1440	≥ 15
	3- 20	12	2	7	12	256Q AM	3/4	1029 6	24	2	1382 4	1728	≥ 15
	5- 20	15	2	7	12	256Q AM	3/4	1296 0	24	3	1728 0	2160	≥ 15
	5- 20	16	2	7	12	256Q AM	3/4	1353 6	24	3	1843 2	2304	≥ 15
	5- 20	18	2	7	12	256Q AM	3/4	1526 4	24	3	2073 6	2592	≥ 15
	5- 20	20	2	7	12	256Q AM	3/4	1699 2	24	3	2304	2880	≥ 15
	5- 20	24	2	7	12	256Q AM	3/4	2061 6	24	4	2764 8	3456	≥ 15
	10 - 20	25	2	7	12	256Q AM	3/4	2138 4	24	4	2880 0	3600	≥ 15
	10 - 20	27	2	7	12	256Q AM	3/4	2292 0	24	4	3110 4	3888	≥ 15
	10 - 20	30	2	7	12	256Q AM	3/4	2545 6	24	5	3456 0	4320	≥ 15
	10 - 20	32	2	7	12	256Q AM	3/4	2737 6	24	5	3686 4	4608	≥ 15
	10 - 20	36	2	7	12	256Q AM	3/4	3057 6	24	6	4147 2	5184	≥ 15

10 - 20	40	2	7	12	256Q AM	3/4	3400 8	24	6	4608 0	5760	≥ 15
10 - 20	45	2	7	12	256Q AM	3/4	3788 8	24	7	5184 0	6480	≥ 15
10 - 20	48	2	7	12	256Q AM	3/4	4057 6	24	8	5529 6	6912	≥ 15
15 - 20	50	2	7	12	256Q AM	3/4	4236 8	24	8	5760 0	7200	≥ 15
15 - 20	54	2	7	12	256Q AM	3/4	4688 8	24	8	6220 8	7776	≥ 15
15 - 20	60	2	7	12	256Q AM	3/4	5102 4	24	9	6912 0	8640	≥ 15
15 - 20	64	2	7	12	256Q AM	3/4	5505 6	24	9	7372 8	9216	≥ 15
15 - 20	72	2	7	12	256Q AM	3/4	6166 4	24	11	8294 4	1036 8	≥ 15
20	75	2	7	12	256Q AM	3/4	6377 6	24	11	8640 0	1080 0	≥ 15
20	80	2	7	12	256Q AM	3/4	6880 8	24	12	9216 0	1152 0	≥ 15
20	81	2	7	12	256Q AM	3/4	6880 8	24	12	9331 2	1166 4	≥ 15
20	90	2	7	12	256Q AM	3/4	7620 8	24	13	1036 80	1296 0	≥ 15
20	96	2	7	12	256Q AM	3/4	8117 6	24	14	1105 92	1382 4	≥ 15
					_		_		_	_		

Note 1: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit)

Note 2: As per Table 4.2-2 in TS 36.211 [13] Note 3: As per Table 4.2-1 in TS 36.211 [13]

### A.3 DL reference measurement channels for E-UTRA

#### A.3.1 General

The number of available channel bits varies across the sub-frames due to PBCH and PSS/SSS overhead. The payload size per sub-frame is varied in order to keep the code rate constant throughout a frame.

Unless otherwise stated, no user data is scheduled on subframes #5 in order to facilitate the transmission of system information blocks (SIB).

The algorithm for determining the payload size A is as follows; given a desired coding rate R and radio block allocation  $N_{\text{DR}}$ 

- 1. Calculate the number of channel bits  $N_{ch}$  that can be transmitted during the first transmission of a given subframe.
- 2. Find A such that the resulting coding rate is as close to R as possible, that is,

$$\min |R - (A + 24*(N_{CB} + 1))/N_{ch}|, where N_{CB} = \begin{cases} 0, & \text{if } C = 1\\ C, & \text{if } C > 1 \end{cases}$$

subject to

- a) A is a valid TB size according to clause 7.1.7 of TS 36.213 [6] assuming an allocation of  $N_{RB}$  resource blocks.
- b) C is the number of Code Blocks calculated according to clause 5.1.2 of TS 36.212 [5].
- 3. If there is more than one *A* that minimizes the equation above, then the larger value is chosen per default and the chosen code rate should not exceed 0.93.
- 4. For TDD, the measurement channel is based on DL/UL configuration ratio of 3DL+DwPTS (10 OFDM symbol SSF7): 1UL.

#### A.3.1.1 QPSK

Table A.3.1.1-1: Fixed Reference Channel for Receiver Requirements (TDD)

Parameter	Unit	Value					
Channel Bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Uplink-Downlink Configuration (NOTE 5)		2	2	2	2	2	2
Special subframe configuration (NOTE 6)		7	7	7	7	7	7
Allocated subframes per Radio Frame (D+S)		3	3+2	3+2	3+2	3+2	3+2
Number of HARQ Processes	Processes	7	7	7	7	7	7
Maximum number of HARQ transmission		1	1	1	1	1	1
Modulation		QPSK	QPSK	QPSK	QPSK	QPSK	QPSK
Target coding rate		1/3	1/3	1/3	1/3	1/3	1/3
Information Bit Payload per Sub-Frame	Bits						
For Sub-Frame 3, 4, 8, 9		408	1320	2216	4392	6712	8760
For Sub-Frame 1, 6		N/A	776	1288	2664	4008	5352
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		208	1064	1800	4392	6712	8760
Transport block CRC	Bits	24	24	24	24	24	24
Number of Code Blocks per Sub-Frame (NOTE 4)							
For Sub-Frame 3, 4, 8, 9		1	1	1	1	2	2
For Sub-Frame 1, 6		N/A	1	1	1	1	1
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		1	1	1	1	2	2
Binary Channel Bits Per Sub-Frame	Bits						
For Sub-Frame 3, 4, 8, 9		1368	3780	6300	13800	20700	27600
For Sub-Frame 1, 6		N/A	2616	4456	9056	13656	18256
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		672	3084	5604	13104	20004	26904
Max. Throughput averaged over 1 frame	kbps	102.4	564	932	1965.	3007.	3970.
					6	2	4
UE Category		≥ 1	≥ 1	≥ 1	≥ 1	≥ 1	≥1

- NOTE 1: For normal subframes(0,3,4,5,8,9), 2 symbols allocated to PDCCH for 20 MHz, 15 MHz and 10 MHz channel BW; 3 symbols allocated to PDCCH for 5 MHz and 3 MHz; 4 symbols allocated to PDCCH for 1.4 MHz. For special subframe (1&6), only 2 OFDM symbols are allocated to PDCCH for all BWs.
- NOTE 2: For 1.4MHz, no data shall be scheduled on special subframes(1&6) to avoid problems with insufficient PDCCH performance
- NOTE 3: Reference signal, Synchronization signals and PBCH allocated as per TS 36.211 [7]
- NOTE 4: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit).
- NOTE 5: As per Table 4.2-2 in TS 36.211 [7]
- NOTE 6: As per Table 4.2-1 in TS 36.211 [7]

#### A.3.1.2 64-QAM

Table A.3.1.2-1: Fixed Reference Channel for Maximum input level for UE Categories ≥ 3 (TDD)

Parameter	Unit			Va	lue		
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Subcarriers per resource block		12	12	12	12	12	12
Uplink-Downlink Configuration (NOTE 5)		2	2	2	2	2	2
Special subframe configuration (NOTE 6)		7	7	7	7	7	7
Allocated subframes per Radio Frame		2	3+2	3+2	3+2	3+2	3+2
Modulation		64QAM	64QAM	64QAM	64QAM	64QAM	64QAM
Target Coding Rate		3/4	3/4	3/4	3/4	3/4	3/4
Number of HARQ Processes	Processes	7	7	7	7	7	7
Maximum number of HARQ transmissions		1	1	1	1	1	1
Information Bit Payload per Sub-Frame							
For Sub-Frames 3, 4, 8, 9	Bits	2984	8504	14112	30576	46888	61664
For Sub-Frames 1,6	Bits	N/A	5544	9528	19848	30576	40576
For Sub-Frame 5	Bits	N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0	Bits	N/A	6968	12576	30576	45352	61664
Transport block CRC	Bits	24	24	24	24	24	24
Number of Code Blocks per Sub-Frame (NOTE 4)							
For Sub-Frames 3, 4, 8, 9		1	2	3	5	8	11
For Sub-Frames 1,6		N/A	2	2	4	6	8
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		N/A	2	3	5	8	11
Binary Channel Bits per Sub-Frame							
For Sub-Frames 3, 4, 8, 9	Bits	4104	11340	18900	41400	62100	82800
For Sub-Frames 1,6		N/A	7848	13368	27168	40968	54768
For Sub-Frame 5	Bits	N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0	Bits	N/A	9252	16812	39312	60012	80712
Max. Throughput averaged over 1 frame	kbps	596.8	3791.2	6369.6	13910	20945	27877

NOTE 1: For normal subframes(0,3,4,5,8,9), 2 symbols allocated to PDCCH for 20 MHz, 15 MHz and 10 MHz channel BW; 3 symbols allocated to PDCCH for 5 MHz and 3 MHz; 4 symbols allocated to PDCCH for 1.4 MHz. For special subframe (1&6), only 2 OFDM symbols are allocated to PDCCH for all BWs.

NOTE 2: For 1.4MHz, no data shall be scheduled on special subframes(1&6) to avoid problems with insufficient PDCCH performance.

NOTE 3: Reference signal, Synchronization signals and PBCH allocated as per TS 36.211 [7].

NOTE 4: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit).

NOTE 5: As per Table 4.2-2 in TS 36.211 [7]. NOTE 6: As per Table 4.2-1 in TS 36.211 [7]

#### A.3.1.3 256-QAM

Table A.3.1.3-1: Fixed Reference Channel for Maximum input level for UE Categories 11/12 and UE DL categories ≥ 11 (TDD)

Parameter	Unit			V	alue		
Channel bandwidth	MHz	1.4	3	5	10	15	20
Allocated resource blocks		6	15	25	50	75	100
Subcarriers per resource block		12	12	12	12	12	12
Uplink-Downlink Configuration (NOTE 5)		2	2	2	2	2	2
Special subframe configuration (NOTE 6)		7	7	7	7	7	7
Allocated subframes per Radio Frame		2	3+2	3+2	3+2	3+2	3+2
Modulation		256QAM	256QAM	256QAM	256QAM	256QAM	256QAM
Target Coding Rate		4/5	4/5	4/5	4/5	4/5	4/5
Number of HARQ Processes	Processes	7	7	7	7	7	7
Maximum number of HARQ transmissions		1	1	1	1	1	1
Information Bit Payload per Sub-Frame							
For Sub-Frames 3,4,8,9	Bits	4392	12216	19848	42368	63776	84760
For Sub-Frames 1,6	Bits	N/A	10464	17824	36224	54624	73024
For Sub-Frame 5	Bits	N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0	Bits	N/A	9912	17568	42368	63776	84760
Transport block CRC	Bits	24	24	24	24	24	24
Number of Code Blocks per Sub-Frame (NOTE 4)							
For Sub-Frames 3,4,8,9		1	2	4	7	11	14
For Sub-Frames 1,6		N/A	2	3	6	9	13
For Sub-Frame 5		N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0		N/A	2	3	7	11	14
Binary Channel Bits per Sub-Frame							
For Sub-Frames 3,4,8,9	Bits	5472	15120	25200	55200	82800	110400
For Sub-Frames 1,6		N/A	8248	13536	27376	40576	55056
For Sub-Frame 5	Bits	N/A	N/A	N/A	N/A	N/A	N/A
For Sub-Frame 0	Bits	N/A	12336	22416	52416	80016	107616
Max. Throughput averaged over 1 frame	kbps	878.4	5570.4	9240	20049.6	30144	40503.2

NOTE 1: For normal subframes(0,3,4,5,8,9), 2 symbols allocated to PDCCH for 20 MHz, 15 MHz and 10 MHz channel BW; 3 symbols allocated to PDCCH for 5 MHz and 3 MHz; 4 symbols allocated to PDCCH for 1.4 MHz. For special subframe (1&6), only 2 OFDM symbols are allocated to PDCCH for all BWs.

NOTE 2: For 1.4MHz, no data shall be scheduled on special subframes(1&6) to avoid problems with insufficient PDCCH performance.

NOTE 3: Reference signal, Synchronization signals and PBCH allocated as per TS 36.211 [7].

NOTE 4: If more than one Code Block is present, an additional CRC sequence of L = 24 Bits is attached to each Code Block (otherwise L = 0 Bit).

NOTE 5: As per Table 4.2-2 in TS 36.211 [7]. NOTE 6: As per Table 4.2-1 in TS 36.211 [7]

# Annex B (normative): Propagation Conditions

Please refer to Annex B in TS 38.521-1 [8] and 38.521-2 [9] for appropriate details as needed for test cases in this test specification. EN-DC exceptions will be added,

# Annex C (normative): Downlink Physical Channels

Please refer to Annex C in TS 38.521-1 [8] and 38.521-2 [9] for appropriate details as needed for test cases in this test specification. EN-DC exceptions will be added,

# Annex D (normative): Characteristics of the Interfering Signal

Please refer to Annex D in TS 38.521-1 [8] and 38.521-2 [9] for appropriate details as needed for test cases in this test specification. EN-DC exceptions will be added,

## Annex E (normative): Global In-Channel Tx Test

Please refer to Annex E in TS 38.521-1 [8] and 38.521-2 [9] for appropriate details as needed for test cases in this test specification. EN-DC exceptions will be added,

# Annex F (informative): Measurement uncertainties and Test Tolerances

F.1 Acceptable uncertainty of Test System (normative)

TBD

F.1.1 Measurement of test environments

TBD

## F.1.2 Measurement of transmitter

Table F.1.2-1: Maximum Test System Uncertainty for transmitter tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
6.2B.1.1 UE Maximum Output Power for Intra-Band Contiguous EN-DC	$f \le 3.0 GHz$ ±0.7 dB, BW $\le 40 MHz$ ±1.4 dB, 40MHz < BW $\le 100 MHz$	,
	3.0GHz < f ≤ 4.2GHz ±1.0 dB, BW ≤ 40MHz	
	±1.6 dB, 40MHz < BW ≤ 100MHz 4.2GHz < f ≤ 6.0GHz ±1.3 dB, BW ≤ 20MHz	
0.00 4.0 U.S. M	$\pm 1.5$ dB, $20$ MHz < BW $\leq 40$ MHz $\pm 1.6$ dB, $40$ MHz < BW $\leq 100$ MHz	Add the state of t
6.2B.1.2 UE Maximum Output Power for Intra-Band Non-Contiguous EN-DC	MAX (MULTE, MUSA)  MULTE	MU <sub>LTE</sub> is MU of LTE specified in clause 6.2.2 in TS 36.521-1 [10].
	±0.7 dB, f ≤ 3.0GHz ±1.0 dB, 3.0GHz < f ≤ 4.2GHz	MU <sub>SA</sub> is MU of FR1 SA specified in clause 6.2.1 in
	$MU_{SA}$ f $\leq$ 3.0GHz $\pm$ 0.7 dB, BW $\leq$ 40MHz $\pm$ 1.4 dB, 40MHz $<$ BW $\leq$ 100MHz	TS 38.521-1 [8].
	3.0GHz < f ≤ 4.2GHz ±1.0 dB, BW ≤ 40MHz	
	±1.6 dB, 40MHz < BW ≤ 100MHz 4.2GHz < f ≤ 6.0GHz	
	$\pm 1.3$ dB, BW $\leq 20$ MHz $\pm 1.5$ dB, $20$ MHz $<$ BW $\leq 40$ MHz $\pm 1.6$ dB, $40$ MHz $<$ BW $\leq 100$ MHz	
6.2B.1.3 UE Maximum Output Power for Inter-Band EN-DC within FR1 (1 E-	MAX (MULTE, MUSA) MULTE	MU <sub>LTE</sub> is MU of LTE specified in clause 6.2.2 in TS 36.521-1 [10].
UTRA CC, 1 NR CC)	±0.7 dB, f ≤ 3.0GHz ±1.0 dB, 3.0GHz < f ≤ 4.2GHz	MU <sub>SA</sub> is MU of FR1 SA specified in clause 6.2.1 in
	MU <sub>SA</sub> f ≤ 3.0GHz ±0.7 dB, BW ≤ 40MHz	TS 38.521-1 [8].
	±1.4 dB, 40MHz < BW ≤ 100MHz  3.0GHz < f ≤ 4.2GHz	
	$\pm 1.0 \text{ dB, BW} \le 40 \text{MHz}$ $\pm 1.6 \text{ dB, } 40 \text{MHz} < \text{BW} \le 100 \text{MHz}$ $4.2 \text{GHz} < \text{f} \le 6.0 \text{GHz}$	
	±1.3 dB, BW ≤ 20MHz ±1.5 dB, 20MHz < BW ≤ 40MHz ±1.6 dB, 40MHz < BW ≤ 100MHz	
6.2B.1.3_1 UE Maximum Output Power for Inter-Band EN-DC within FR1 (2 E- UTRA CCs, 1 NR CC)	Same as 6.2B.1.3	
6.2B.1.4.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (2 CCs) - EIRP and TRP	Same as clause 6.2.1.1 in TS 38.521-2	
6.2B.1.4_1.1.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 CCs) - EIRP and TRP	Same as clause 6.2A.1.1.1 in TS 38.521-2	

6.2B.1.4_1.1.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 CCs) - Spherical Coverage	Same as clause 6.2A.1.2.1 in TS 38.521-2	
6.2B.1.4_1.2.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 NR CCs) - EIRP and TRP	Same as clause 6.2A.1.1.2 in TS 38.521-2	
6.2B.1.4_1.2.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 NR CCs) -Spherical Coverage	Same as clause 6.2A.1.2.2 in TS 38.521-2	
6.2B.1.4_1.3.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 NR CCs) - EIRP and TRP	Same as clause 6.2A.1.1.3 in TS 38.521-2	
6.2B.1.4_1.3.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 NR CCs) –Spherical Coverage	Same as clause 6.2A.1.2.3 in TS 38.521-2	
6.2B.1.4_1.4.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (5 NR CCs) - EIRP and TRP	Same as clause 6.2A.1.1.4 in TS 38.521-2	
6.2B.1.4_1.4.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (5 NR CCs) –Spherical Coverage	Same as clause 6.2A.1.2.4 in TS 38.521-2	
6.2B.1.4_1.5.1 UE Maximum Output Power for Inter-Band EN-DC including FR2 (6 NR CCs) - EIRP and TRP	Same as clause 6.2A.1.1.5 in TS 38.521-2	
6.2B.1.4_1.5.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (6 NR CCs) –Spherical Coverage	Same as clause 6.2A.1.2.5 in TS 38.521-2	
6.2B.1.4.2 UE Maximum Output Power for Inter-Band EN-DC including FR2 (2 CCs) - Spherical Coverage	Same as clause 6.2.1.2 in TS 38.521-2	
6.2B.2.1 UE Maximum Output Power reduction for Intra-Band Contiguous EN- DC	Same as clause 6.2B.1.1	
6.2B.2.2 UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC	Same as clause 6.2B.1.2	
6.2B.2.3 UE Maximum Output Power reduction for Inter-Band EN-DC within FR1	Same as clause 6.2B.1.3	
6.2B.2.4 UE Maximum Output Power reduction for Inter-Band EN-DC including FR2	Same as clause 6.2.2 in TS 38.521-2 [9]	

6.2B.2.4a UE Maximum	Same as clause 6.2.2_1 in TS 38.521-2 [9]
Output Power reduction	
enhancements for Inter-	
Band EN-DC including FR2	
(1 NR CC)	
6.2B.2.4 1.1 UE Maximum	Same as clause 6.2A.2.1 in TS 38.521-2 [9]
_	Jame as clause 0.2A.2.1 iii 13 30.321-2 [a]
Output Power reduction for	
Inter-Band EN-DC including	
FR2 (2 NR CCs)	
6.2B.3.1 UE Additional	Same as clause 6.2B.1.1
Maximum Output Power	
reduction for Intra-band	
contiguous EN-DC	
6.2B.3.2 UE Additional	Same as clause 6.2B.1.2
	Same as clause 6.2b.1.2
Maximum Output Power	
reduction for Intra-Band	
Non-Contiguous EN-DC	
6.2B.3.3 UE Additional	Same as clause 6.2B.1.3
Maximum Output Power	
reduction for Inter-Band EN-	
DC within FR1	
	Comp on playing 0.0.0 in TO 00 F04 0 [0]
6.2B.3.4 UE Additional	Same as clause 6.2.3 in TS 38.521-2 [9]
Maximum Output Power	
reduction for Inter-Band EN-	
DC including FR2 (1 NR	
(CC)	
6.2B.4.1.1 Configured	Same as clause 6.2B.1.1
Output Power Level for	Outillo do diadoo 0.25.1.1
Intra-Band Contiguous EN-	
DC	
6.2B.4.1.2 Configured	Same as clause 6.2B.1.2
Output Power for Intra-Band	
Non-Contiguous EN-DC	
6.2B.4.1.3 Configured	Same as clause 6.2B.1.3
Output Power for Inter-Band	danie as clause 0.25.1.5
EN-DC within FR1 (1 E-	
UTRA CC, 1 NR CC)	
6.2B.4.1.3_1 Configured	Same as 6.2B.1.3
Output Power for Inter-Band	
EN-DC within FR1 (2 E-	
UTRA CCs, 1 NR CC)	
	Same as clause 6.2.4_1 in TS 38.521-2 [9]
6.2B.4.1.4_1 Configured	Same as clause 6.2.4_1 iii 13 36.521-2 [9]
Output Power with Power	
Boost for Inter-Band EN-DC	
including FR2 (1 NR CC)	
6.3B.1.1 Minimum Output	Same as clause 6.3.1 in TS 38.521-1 [8]
Power for intra-band	· ·
contiguous EN-DC	
6.3B.1.2 Minimum output	Samo as clause 6.3.1 in TS 39.531.1 [9]
	Same as clause 6.3.1 in TS 38.521-1 [8]
power for intra-band non-	
contiguous EN-DC	
6.3B.1.3 Minimum output	Same as clause 6.3.1 in TS 38.521-1 [8]
power for inter-band EN-DC	
within FR1	
6.3B.1.4 Minimum Output	Same as clause 6.3.1 in TS 38.521-2 [9]
Power for EN-DC Interband	Outile de sidde 6.6.1 iii 10 00.021-2 [8]
including FR2	0 00 44 : T0 00 504 0 50
6.3B.1.4_1.1 Minimum	Same as 6.3A.1.1 in TS 38.521-2 [9]
output power for inter-band	
EN-DC including FR2 (3	
CCs)	
6.3B.1.4_1.2 Minimum	Same as 6.3A.1.2 in TS 38.521-2 [9]
output power for inter-band	Outile 40 0.07 t. 1.2 iii 10 00.02 i 2 [0]
EN-DC including FR2 (4	
CCs)	

6.3B.1.4_1.3 Minimum	Same as 6.3A.1.3 in TS 38.521-2 [9]	
output power for inter-band		
EN-DC including FR2 (5		
CCs)		
6.3B.2.1 Transmit OFF	Same as clause 6.3.2 in TS 38.521-1 [8]	
Power for intra-band		
contiguous EN-DC		
6.3B.2.2 Transmit OFF	Same as clause 6.3.2 in TS 38.521-1 [8]	
Power for intra-band non-	Carrie as clause c.o.z iii 10 co.oz i 1 [o]	
contiguous EN-DC		
6.3B.2.3 Transmit OFF	Same as clause 6.3.2 in TS 38.521-1 [8]	
Power for inter-band EN-DC	Same as clause 0.3.2 iii 13 30.321-1 [0]	
within FR1	O 0.00 in TO 00 504 0 [0]	
6.3B.2.4 Transmit OFF	Same as clause 6.3.2 in TS 38.521-2 [9]	
Power for inter-band EN-DC		
including FR2		
6.3B.3.1 Tx ON/OFF time	Same as clause 6.3.3.2 in TS 38.521-1 [8]	
mask for intra-band		
contiguous EN-DC		
6.3B.2.4_1.1 Transmit OFF		
Power for Inter-band EN-DC	Same as clause 6.3A.2.1 in TS 38.521-2 [9]	
including FR2 (3 CCs)		
6.3B.2.4_1.2 Transmit OFF		
Power for Inter-band EN-DC	Same as clause 6.3A.2.2 in TS 38.521-2 [9]	
including FR2 (4 CCs)		
6.3B.2.4_1.3 Transmit OFF		
Power for Inter-band EN-DC	Same as clause 6.3A.2.3 in TS 38.521-2 [9]	
including FR2 (5 CCs)	[.,	
6.3B.3.2 Tx ON/OFF time	Same as clause 6.3.3.2 in TS 38.521-1 [8]	
mask for intra-band non-	came ac claude cloicit.	
contiguous EN-DC		
6.3B.3.3 Tx ON/OFF time	Same as clause 6.3.3.2 in TS 38.521-1 [8]	
mask for inter-band EN-DC	Same as clause 0.5.5.2 iii 10 50.521-1 [0]	
within FR1		
6.3B.3.4 Transmit ON/OFF	Same as clause 6.3.3.2 in TS 38.521-2 [9]	
time mask for inter-band	Same as clause 0.3.3.2 iii 13 30.321-2 [9]	
EN-DC including FR2	Come as aloues C 2 2 4 in TC 20 524 4 [0]	
6.3B.4.3 PRACH Time Mask	Same as clause 6.3.3.4 in TS 38.521-1 [8]	
for inter-band EN-DC within		
FR1	0 0 40 70 00 504 450	
6.3B.8.1.1 Absolute power	Same as clause 6.3.4.2 in TS 38.521-1 [8]	
tolerance for intra-band		
contiguous EN-DC		
6.3B.8.1.2 Absolute power	Same as clause 6.3.4.2 in TS 38.521-1 [8]	
tolerance for intra-band non-		
contiguous EN-DC		
6.3B.8.1.3 Absolute power	Same as clause 6.3.4.2 in TS 38.521-1 [8]	
tolerance for inter-band EN-		
DC within FR1		<u> </u>
6.3B.8.1.4 Absolute power	Same as clause 6.3.4.2 in TS 38.521-2 [9]	
tolerance for inter-band EN-		
DC including FR2		
6.3B.8.2.1 Relative power	Same as clause 6.3.4.3 in TS 38.521-1 [8]	
tolerance for intra-band		
contiguous EN-DC		
6.3B.8.2.2 Relative power	Same as clause 6.3.4.3 in TS 38.521-1 [8]	
tolerance for intra-band non-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
contiguous EN-DC		
6.3B.8.2.3 Relative power	Same as clause 6.3.4.3 in TS 38.521-1 [8]	
tolerance for inter-band EN-	Odino do oladoc 0.0.7.0   1 10 00.021-1 [0]	
DC within FR1		
	Como ao alguno 6.2.4.2 in TC 20 504.0 [0]	
6.3B.8.2.4 Relative power tolerance for inter-band EN-	Same as clause 6.3.4.3 in TS 38.521-2 [9]	
DC including FR2	Come on playing 0.0 4.4 in TO 00 F04.4 f01	
6.3B.8.3.1 Aggregate power	Same as clause 6.3.4.4 in TS 38.521-1 [8]	
tolerance for intra-band contiguous EN-DC		

6.3B.8.3.2 Aggregate power tolerance for intra-band non-contiguous EN-DC	Same as clause 6.3.4.4 in TS 38.521-1 [8]	
6.3B.8.3.3 Aggregate power tolerance for inter-band ENDC within FR1	Same as clause 6.3.4.4 in TS 38.521-1 [8]	
6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2	Same as clause 6.3.4.4 in TS 38.521-2 [9]	
6.4B.1.1 Frequency Error for intra-band contiguous ENDC	TBD	
6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC	TBD	
6.4B.1.3 Frequency Error for inter-band EN-DC within FR1	Same as clause 6.4.1 in TS 38.521-1 [8]	
6.4B.1.4 Frequency Error for inter-band EN-DC including FR2	Same as clause 6.4.1 in TS 38.521-2 [9]	
6.4B.1.4_1.1 Frequency Error for Inter-band EN-DC including FR2 (3 CCs)	Same as clause 6.4A.1.1 in TS 38.521-2 [9]	
6.4B.1.4_1.2 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)	Same as clause 6.4A.1.2 in TS 38.521-2 [9]	
6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (5 CCs)	Same as clause 6.4A.1.3 in TS 38.521-2 [9]	
6.4B.2.1.1 Error Vector Magnitude for intra-band contiguous EN-DC	Same as clause 6.4.2.1 in TS 38.521-1 [8] Uplink power measurement same as 6.3B.1.1.	
6.4B.2.1.2 Carrier Leakage for intra-band contiguous EN-DC	Same as clause 6.4.2.2 in TS 38.521-1 [8]	
6.4B.2.1.3 In-band Emissions for intra-band contiguous EN-DC	Same as clause 6.4.2.3 in TS 38.521-1 [8] for ENBW ≤100MHz. Uplink power measurement for steps 2 and 8 same as 6.2B.1.1. Uplink power measurement for steps 4, 6, 10, and 12 same as 6.3B.1.1.	
6.4B.2.1.4 EVM Equalizer Flatness for intra-band contiguous EN-DC	Same as clause 6.4.2.4 in TS 38.521-1 [8]	
6.4B.2.2.1 Error Vector Magnitude for intra-band non-contiguous EN-DC	Same as clause 6.4.2.1 in TS 38.521-1 [8] Uplink power measurement same as 6.3B.1.2.	
6.4B.2.2.2 Carrier Leakage for intra-band non- contiguous EN-DC	Same as clause 6.4.2.2 in TS 38.521-1 [8] Uplink power measurement for step 2 and step 4 same as 6.2B.1.2. Uplink power measurement for step 6 and step 8 same as 6.3B.1.2.	
6.4B.2.2.3 In-band Emissions for intra-band non-contiguous EN-DC	Same as clause 6.4.2.3 in TS 38.521-1 [8] Uplink power measurement for steps 2 and 8 same as 6.2B.1.2. Uplink power measurement for steps 4, 6, 10, and 12 same as 6.3B.1.2.	
6.4B.2.2.4 EVM Equalizer Flatness for intra-band non-contiguous EN-DC	Same as clause 6.4.2.4 in TS 38.521-1 [8]	
6.4B.2.3.1 Error Vector Magnitude for inter-band EN-DC within FR1	Same as clause 6.4.2.1 in TS 38.521-1 [8] Uplink power measurement same as 6.3B.1.3.	

6.4B.2.3.2 Carrier Leakage for inter-band EN-DC within FR1  Same as clause 6.4.2.2 in TS 38.521-1 [8]  Uplink power measurement for step 2 and step 4 same as 6.2B.1.3.  Uplink power measurement for step 6 and step 8 same as 6.3B.1.3.  6.4B.2.3.3 In-band Emissions for inter-band EN-DC within FR1  Emissions for inter-band EN-DC within FR1  6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  6.4B.2.4.1a Error Vector Same as clause 6.4.2.1 in TS 38.521-2 [9]	
FR1  as 6.2B.1.3. Uplink power measurement for step 6 and step 8 same as 6.3B.1.3.  6.4B.2.3.3 In-band Emissions for inter-band EN-DC within FR1  6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  as 6.2B.1.3. Uplink power measurement for steps 1.2, 1.4, 2.2, and 2.4 same as 6.2B.1.3. Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  Same as clause 6.4.2.4 in TS 38.521-1 [8]  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
Uplink power measurement for step 6 and step 8 same as 6.3B.1.3.  6.4B.2.3.3 In-band	
as 6.3B.1.3.  6.4B.2.3.3 In-band Emissions for inter-band EN-DC within FR1  6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  Same as clause 6.4.2.3 in TS 38.521-1 [8]  Uplink power measurement for steps 1.2, 1.4, 2.2, and 2.4 same as 6.2B.1.3.  Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  Same as clause 6.4.2.4 in TS 38.521-1 [8]  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
6.4B.2.3.3 In-band Emissions for inter-band EN-DC within FR1  6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  Same as clause 6.4.2.3 in TS 38.521-1 [8] Uplink power measurement for steps 1.2, 1.4, 2.2, and 2.4 same as 6.2B.1.3. Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  Same as clause 6.4.2.4 in TS 38.521-1 [8]  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
Emissions for inter-band EN-DC within FR1  Uplink power measurement for steps 1.2, 1.4, 2.2, and 2.4 same as 6.2B.1.3. Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1 6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  Uplink power measurement for steps 1.2, 1.4, 2.2, and 2.4 same as 6.2B.1.3. Uplink power measurement for steps 1.2, 1.4, 2.2, and 2.4 same as 6.2B.1.3. Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  Same as clause 6.4.2.4 in TS 38.521-1 [8]  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
EN-DC within FR1  2.4 same as 6.2B.1.3. Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  2.4 same as 6.2B.1.3. Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  Same as clause 6.4.2.4 in TS 38.521-1 [8]  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  6.4B.2.3.4 EVM Equalizer Flatness for inter-band ENDC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  Uplink power measurement for steps 1.6, 1.8, 2.6, and 2.8 same as 6.3B.1.3.  Same as clause 6.4.2.4 in TS 38.521-1 [8]  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
2.8 same as 6.3B.1.3.  6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  2.8 same as 6.3B.1.3.  Same as clause 6.4.2.4 in TS 38.521-1 [8]  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN- DC within FR1 6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  Same as clause 6.4.2.4 in TS 38.521-1 [8]  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
Flatness for inter-band EN-DC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
DC within FR1  6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
6.4B.2.4.1 Error Vector Magnitude for inter-band EN-DC including FR2  Same as clause 6.4.2.1 in TS 38.521-2 [9]	
Magnitude for inter-band EN-DC including FR2	
Magnitude for inter-band EN-DC including FR2	
TO.4D.Z.4. TA ETIOL VECTOL — FOATHE AS CIAUSE 0.4.Z.T = LID TO 50.DZT-Z 191 — - 1	
Magnitude with Power Boost	
for inter-band EN-DC	
including FR2 (1 NR CC)	
6.4B.2.4.2 Carrier Leakage Same as clause 6.4.2.2 in TS 38.521-2 [9]	
for inter-band EN-DC	
including FR2	
6.4B.2.4.3 In-band Same as clause 6.4.2.3 in TS 38.521-2 [9]	
Emissions for inter-band	
EN-DC including FR2	
6.4B.2.4.4 EVM Equalizer Same as clause 6.4.2.4 in TS 38.521-2 [9]	
Flatness for inter-band EN-	
DC including FR2	
6.4B.2.4.5 EVM spectral Same as clause 6.4.2.5 in TS 38.521-2 [9]	
flatness for pi/2 BPSK	
modulation for inter-band	
EN-DC including FR2 (1 NR	
CC)	
6.5B.1.1 Occupied 1.5% of aggregated channel bandwidth	
bandwidth for Intra-Band	
Contiguous EN-DC	
6.5B.1.2 Occupied Same as clause 6.5.1 in TS 38.521-1 [8]	
bandwidth for Intra-Band	
Non-Contiguous EN-DC	
6.5B.1.3 Occupied Same as clause 6.5.1 in TS 38.521-1 [8]	
bandwidth for Inter-Band	
EN-DC within FR1	
6.5B.1.4 Occupied Same as clause 6.5.1 in TS 38.521-2 [9]	
bandwidth for Inter-Band	
EN-DC including FR2	
6.5B.1.4_1.1 Occupied TBD	
bandwidth for Inter-band	
EN-DC including FR2 (3	
CCs)	
6.5B.1.4_1.2 Occupied TBD	
bandwidth for Inter-band	
EN-DC including FR2 (4	
CCs)	
6.5B.1.4_1.3 Occupied TBD	
bandwidth for Inter-band	
EN-DC including FR2 (5	
CCs)	
6.5B.1.4D Occupied Same as clause 6.5D.1 in TS 38.521-2 [9]	
bandwidth for inter-band	
EN-DC including FR2 for UL	
MIMO  C. F.D. 2.4.4. Construers  Compa on playing C. F. 2.2 in TC 20 F24.4 [9]	
6.5B.2.1.1 Spectrum Same as clause 6.5.2.2 in TS 38.521-1 [8]	
emissions mask for intra-	
band contiguous EN-DC	

6.5B.2.1.2 Additional	Same as clause 6.5.2.3 in TS 38.521-1 [8]	
spectrum emissions mask		
for intra-band contiguous		
EN-DC		
6.5B.2.1.3 Adjacent channel	Same as clause 6.5.2.4.1 in TS 38.521-1 [8]	
leakage ratio for intra-band		
contiguous EN-DC		
6.5B.2.2.1 Spectrum	Same as clause 6.5.2.2 in TS 38.521-1 [8]	
emissions mask for intra-		
band non-contiguous EN-		
DC		
6.5B.2.2.2 Additional	Same as clause 6.5.2.3 in TS 38.521-1 [8]	
Spectrum emissions mask		
for intra-band non-		
contiguous EN-DC		
6.5B.2.2.3 Adjacent channel	TBD	
leakage ratio for intra-band		
non-contiguous EN-DC		
6.5B.2.3.1 Spectrum	Same as clause 6.5.2.2 in TS 38.521-1 [8]	
emissions mask for Inter-		
band EN-DC within FR1		
6.5B.2.3.2 Additional	Same as clause 6.5.2.3 in TS 38.521-1 [8]	
Spectrum emissions mask		
for Inter-band EN-DC within		
FR1		
6.5B.2.3.3.1NR - Adjacent	Same as clause 6.5.2.4.1 in TS 38.521-1 [8]	
channel leakage ratio for		
inter-band EN-DC within		
FR1 (1 NR CC)		
6.5B.2.3.3.2 UTRA	Same as clause 6.5.2.4.2 in TS 38.521-1 [8]	
- Adjacent channel leakage		
ratio for inter-band EN-DC		
within FR1 (1 NR CC)	O	
6.5B.2.4.1 Spectrum emissions mask for Inter-	Same as clause 6.5.2.1 in TS 38.521-2 [9]	
band EN-DC including FR2	Same as clause 6.5.2.1.1_1 in TS 38.521-2 [9]	
6.5B.2.4.1a Spectrum emissions mask with Power	Same as clause 6.5.2.1.1_1 iii 13 36.521-2 [9]	
Boost for Inter-band EN-DC		
including FR2 (1 NR CC)		
6.5B.2.4.1_1.1 Spectrum	Same as clause 6.5A.2.1.1 in TS 38.521-2 [9]	
emissions mask for Inter-	Joanne as clause 6.5A.2.1.1 iii 10 30.321-2 [3]	
band EN-DC including FR2		
(2 NR CCs)		
6.5B.2.4.1_1.2 Spectrum	Same as clause 6.5A.2.1.2 in TS 38.521-2 [9]	
emissions mask for Inter-	555 55 516465 5157 HZ 117 10 50.0Z 1 Z [0]	
band EN-DC including FR2		
(3 NR CCs)		
6.5B.2.4.1_1.3 Spectrum	Same as clause 6.5A.2.3 in TS 38.521-2 [9]	
emissions mask for Inter-	7	
band EN-DC including FR2		
(4 NR CCs)		
6.5B.2.4.3 Adjacent channel	Same as clause 6.5.2.3 in TS 38.521-2 [9]	
leakage ratio for Inter-band	· · ·	
EN-DC including FR2		
6.5B.2.4.3_1.1 Adjacent	Same as clause 6.5A.2.2.1 in TS 38.521-2 [9]	
channel leakage ratio for		
Inter-band EN-DC including		
FR2 (2 NR CCs)		
6.5B.2.4.3_1.2 Adjacent	Same as clause 6.5A.2.2.2 in TS 38.521-2 [9]	
channel leakage ratio for		
Inter-band EN-DC including		
FR2 (3 NR CCs)		
6.5B.2.4.3_1.3 Adjacent	Same as clause 6.5A.2.2.3 in TS 38.521-2 [9]	
channel leakage ratio for		
Inter-band EN-DC including		
FR2 (4 NR CCs)		

6.5B.2.4.3_1.4 Adjacent channel leakage ratio for	
I channel leakage ratio for	
Inter-band EN-DC including	
FR2 (5 NR CCs)	
6.5B.2.4.3_1.5 Adjacent Same as clause 6.5A.2.2.5 in TS 38.521-2 [9]	
channel leakage ratio for Inter-band EN-DC including	
FR2 (6 NR CCs)	
6.5B.2.4.3_1.6 Adjacent Same as clause 6.5A.2.2.6 in TS 38.521-2 [9]	
channel leakage ratio for	
Inter-band EN-DC including	
FR2 (7 NR CCs)	
6.5B.2.4.3_1.7 Adjacent Same as clause 6.5A.2.2.7 in TS 38.521-2 [9]	
channel leakage ratio for Inter-band EN-DC including	
FR2 (8 NR CCs)	
6.5B.3.1.1 General spurious Same as clause 6.5.3.1 in TS 38.521-1 [8]	
emissions for intra-band	
contiguous EN-DC	
6.5B.3.1.2 Spurious Same as clause 6.5.3.1 in TS 38.521-1 [8] emission band UE co-	
existence for intra-band	
contiguous EN-DC	
6.5B.3.2.1 General spurious Same as clause 6.5.3.1 in TS 38.521-1 [8]	
emissions for Intra-band	
non-contiguous EN-DC	
6.5B.3.2.2 Spurious Same as clause 6.5.3.1 in TS 38.521-1 [8]	
Emission band UE co- existence for intra-band non-	
contiguous EN-DC	
6.5B.3.3.1 General spurious   Same as clause 6.5.3.1 in TS 38.521-1 [8]	
emissions for Inter-band EN-	
DC within FR1	
6.5B.3.3.2 Spurious Same as clause 6.5.3.1 in TS 38.521-1 [8]	
emission band UE co- existence for Inter-band	
within FR1	
6.5B.3.4.1 General Spurious Same as clause 6.5.3.1 in TS 38.521-2 [9]	
Emissions for Inter-band	
including FR2 (2 CCs)	
6.5B.3.4.1a General Same as clause 6.5.3.1_1 in TS 38.521-2 [9]	
Spurious Emissions with Power Boost for Inter-band	
including FR2 (1 NR CC)	
6.5B.3.4.1_1.1 General Same as clause 6.5A.3.1.1 in TS 38.521-2 [9]	
Spurious Emissions for	
Inter-band including FR2 (2	
NR CCs) 6.5B.3.4.1_1.2 General Same as clause 6.5A.3.1.2 in TS 38.521-2 [9]	
Spurious Emissions for	
Inter-band including FR2 (3	
NR CCs)	
6.5B.3.4.1_1.3 General Same as clause 6.5A.3.1.3 in TS 38.521-2 [9]	
Spurious Emissions for	
Inter-band including FR2 (4 NR CCs)	
6.5B.3.4.1_1.4 General Same as clause 6.5A.3.1.4 in TS 38.521-2 [9]	
Spurious Emissions for	
Inter-band including FR2 (5	
NR CCs)	
6.5B.3.4.1_1.5 General Same as clause 6.5A.3.1.5 in TS 38.521-2 [9]	
Spurious Emissions for Inter-band including FR2 (6	
NR CCs)	
6.5B.3.4.1_1.6 General Same as clause 6.5A.3.1.6 in TS 38.521-2 [9]	
Spurious Emissions for	
Inter-band including FR2 (7	
NR CCs)	Î.

Same as clause 6.5A.3.1.7 in TS 38.521-2 [9]	
Same as clause 6.5.3.2 in TS 38.521-2 [9]	
Same as clause 6.5.3.2.1 in TS 38.521-2 [9]	
Comp. on alouan C.F. 2.2 in TC 20 F24 4 [9]	
Same as clause 6.5.3.3 in 18 38.521-1 [8]	
Same as clause 6.5.3.3 in TS 38.521-1 [8]	
Same as clause 6.5.3.3 in TS 38.521-1 [8]	
Same as clause 6.5.3.3 in TS 38.521-2 [9]	
Same as clause 6.5.3.3 1 in TS 38.521-2 [9]	
Camp as clause 6.5.4.2 in TC 29.521.1 [9]	
Jame as clause 0.3.4.3 iii 13 30.32 1-1 [0]	
Comp. on playing C.C.4 in TC.CC 504 0 [0]	
Same as clause 6.6.1 in 15 38.521-2 [9]	
Same as clause 6.6.2 in TS 38.521-2 [9]	
	Same as clause 6.5A.3.1.7 in TS 38.521-2 [9]  Same as clause 6.5.3.2 in TS 38.521-2 [9]  Same as clause 6.5.3.2 in TS 38.521-2 [9]  Same as clause 6.5.3.3 in TS 38.521-1 [8]  Same as clause 6.5.3.3 in TS 38.521-1 [8]  Same as clause 6.5.3.3 in TS 38.521-2 [9]  Same as clause 6.5.3.3 in TS 38.521-2 [9]  Same as clause 6.5.3.3 in TS 38.521-2 [9]  Same as clause 6.5.4.3 in TS 38.521-2 [9]  Same as clause 6.6.1 in TS 38.521-2 [9]

## F.1.3 Measurement of receiver

Table F.1.3-1: Maximum Test System Uncertainty for receiver tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
7.3B.2.1 Reference sensitivity for Intra-band	Same as clause 7.3.2 in TS 38.521-1 [8]	,
Contiguous EN-DC (2 CCs)		
7.3B.2.2 Reference	Same as clause 7.3.2 in TS 38.521-1 [8]	
sensitivity for Intra-band		
non-contiguous EN-DC (2 CCs)		
7.3B.2.3 Reference	Same as clause 7.3.2 in TS 38.521-1 [8]	
sensitivity for Inter-band EN-		
DC within FR1 (2 CCs) 7.3B.2.3_1.1 Reference	Same as clause 7.3A.1 in TS 38.521-1 [8]	
sensitivity for Inter-band EN-	Same as clause 1.5A.1 iii 13 30.321-1 [0]	
DC within FR1 (3 CCs)		
7.3B.2.4 Reference	Same as clause 7.3.2 in TS 38.521-2 [9]	
sensitivity for Inter-band EN-		
DC including FR2		
7.3B.2.4_1.1 Reference	Same as clause 7.3A.2.1 in TS 38.521-2 [9]	
sensitivity for Inter-band EN- DC including FR2 (3 CCs)		
7.3B.2.4_1.2 Reference	Same as clause 7.3A.2.2 in TS 38.521-2 [9]	
sensitivity for Inter-band EN- DC including FR2 (4 CCs)		
7.3B.2.4_1.3 Reference	Same as clause 7.3A.2.3 in TS 38.521-2 [9]	
sensitivity for Inter-band EN-		
DC including FR2 (5 CCs)		
7.3B.2.4_1.4 Reference	Same as clause 7.3A.2.4 in TS 38.521-2 [9]	
sensitivity for Inter-band EN-		
DC including FR2 (6 CCs)		
7.3B.4 EIS Spherical	Same as clause 7.3.4 in TS 38.521-2 [9]	
Coverage for Inter-band EN- DC including FR2		
7.4B.1 Maximum Input Level	MU for NR CC downlink power same as clause 7.4 in	
for Intra-Band Contiguous	TS 38.521-1 [8].	
EN-DC (2 CCs)	Uplink power measurement same as 6.2B.1.1.	
7.4B.2 Maximum Input Level	Same as clause 7.4 in TS 38.521-1 [8]	
for Intra-Band Non-	Uplink power measurement same as 6.2B.1.2.	
Contiguous EN-DC (2 CCs)		
7.4B.3 Maximum Input Level	Same as clause 7.4 in TS 38.521-1 [8]	
for Inter-band EN-DC within	Uplink power measurement same as 6.2B.1.3.	
FR1 (2 CCs)	Ones an aloue 7.40.4 in TO 00 504.4 [0]	
7.4B.3_1.1 Maximum Input Level for Inter-band EN-DC	Same as clause 7.4A.1 in TS 38.521-1 [8]	
within FR1 (3 CCs)	Uplink power measurement same as 6.2B.1.3.	
7.5B.1 Adjacent Channel	Same as clause 7.5 in TS 38.521-1 [8] for NR CC	
Selectivity for intra-band	Same as clause 7.5 in TS 36.521 [10]	
contiguous EN-DC (2 CCs)	Uplink power measurement same as 6.2B.1.1.	
7.5B.2 Adjacent Channel	Same as clause 7.5 in TS 38.521-1 [8]	
Selectivity for intra-band	Uplink power measurement same as 6.2B.1.2.	
non-contiguous EN-DC (2		
CCs)	Como on eleven 7.5 := TO 00 504 4 501	
7.5B.3 Adjacent Channel	Same as clause 7.5 in TS 38.521-1 [8]	
Selectivity for inter-band EN- DC within FR1 (2 CCs)	Uplink power measurement same as 6.2B.1.3.	
7.5B.3_1.1 Adjacent	Same as clause 7.5A in TS 38.521-1 [8]	
Channel Selectivity for EN-	Uplink power measurement same as 6.2B.1.3.	
DC within FR1 (3 CCs)	, , , , , , , , , , , , , , , , , , , ,	
7.5B.3_1.2 Adjacent	Same as clause 7.5A in TS 38.521-1 [8]	
Channel Selectivity for EN- DC within FR1 (4 CCs)	Uplink power measurement same as 6.2B.1.3.	
7.5B.3_1.3 Adjacent	Same as clause 7.5A in TS 38.521-1 [8]	
Channel Selectivity for EN-	Uplink power measurement same as 6.2B.1.3.	
DC within FR1 (5 CCs)		
7.5B.3_1.4 Adjacent	Same as clause 7.5A in TS 38.521-1 [8]	
Channel Selectivity for EN-	Uplink power measurement same as 6.2B.1.3.	

Same as clause 7.5 in TS 38.521-2 [9] Same as clause 7.5 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as 6.2 in TS 38.521-1 [8] Uplink power measurement same as			
DC including FR2 (2CCs) 7.58.4.1.1 Adjacent Channel Selectivity for interband EN-DC including FR2 (3.COs) 7.58.4.1.2 Adjacent Channel Selectivity for interband EN-DC including FR2 (4.COs) 7.58.4.1.3 Adjacent Channel Selectivity for interband EN-DC including FR2 (5.COs) 7.58.4.1.3 Adjacent Channel Selectivity for interband EN-DC including FR2 (6.COs) 7.58.4.1.4 Adjacent Channel Selectivity for interband EN-DC including FR2 (6.COs) 7.58.4.1.3 Adjacent Channel Selectivity for interband EN-DC including FR2 (6.COs) 7.58.4.1.4 Adjacent Channel Selectivity for interband EN-DC including FR2 (6.COs) 7.58.4.1.4 Inband blocking for InbADC within FR1 (3.COs) 7.58.2.3 Inband blocking for interband EN-DC including FR2 (6.COs) 7.58.2.3 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.3 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-	7.5B.4 Adjacent Channel	Same as clause 7.5 in TS 38.521-2 [9]	
DC including FR2 (2CCs) 7.58.4.1.1 Adjacent Channel Selectivity for interband EN-DC including FR2 (3.COs) 7.58.4.1.2 Adjacent Channel Selectivity for interband EN-DC including FR2 (4.COs) 7.58.4.1.3 Adjacent Channel Selectivity for interband EN-DC including FR2 (5.COs) 7.58.4.1.3 Adjacent Channel Selectivity for interband EN-DC including FR2 (6.COs) 7.58.4.1.4 Adjacent Channel Selectivity for interband EN-DC including FR2 (6.COs) 7.58.4.1.3 Adjacent Channel Selectivity for interband EN-DC including FR2 (6.COs) 7.58.4.1.4 Adjacent Channel Selectivity for interband EN-DC including FR2 (6.COs) 7.58.4.1.4 Inband blocking for InbADC within FR1 (3.COs) 7.58.2.3 Inband blocking for interband EN-DC including FR2 (6.COs) 7.58.2.3 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.3 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC within FR1 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.2.4 Inband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-DC including FR2 (3.COs) 7.58.3.3 Unterband blocking for interband EN-	Selectivity for inter-band EN-		
As a clause 7.5A in TS 38.521-2 [9]  As a clause 7.5A in TS 38.521-1 [8]  As a clause			
Channel Selectivity for interband EN-DC including FR2 (3 CCs)  7.58.4.1.2 Adjacent Channel Selectivity for interband EN-DC including FR2 (4 CCs) 7.58.4.1.3 Inband blocking for interband EN-DC including FR3 (5 Ccs) 7.68.2.2 Inband blocking for interband EN-DC including FR3 (5 Ccs) 7.68.2.3 Inband blocking for interband EN-DC including FR3 (5 Ccs) 7.68.2.3 Inband blocking for interband EN-DC including FR3 (5 Ccs) 7.68.2.3 Inband blocking for interband EN-DC including FR3 (5 Ccs) 7.68.2.3 Inband blocking for interband EN-DC within FR1 (2 Ccs) 7.68.2.3 Inband blocking for interband EN-DC within FR1 (2 Ccs) 7.68.2.4 Inband blocking for interband EN-DC within FR1 (2 Ccs) 7.68.2.5 Inband blocking for interband EN-DC within FR1 (2 Ccs) 7.68.2.4 Inband blocking for interband EN-DC within FR1 (2 Ccs) 7.68.2.4 Inband blocking for interband EN-DC within FR1 (2 Ccs) 7.68.2.4 Inband blocking for interband EN-DC within FR1 (2 Ccs) 7.68.2.4 Inband blocking for interband EN-DC including FR2 (3 Ccs) 7.68.2.4 Inband blocking for interband EN-DC including FR2 (3 Ccs) 7.68.2.4 Inband blocking for interband EN-DC including FR2 (3 Ccs) 7.68.2.4 Inband blocking for interband EN-DC including FR2 (3 Ccs) 7.68.2.4 Inband blocking for interband EN-DC including FR2 (3 Ccs) 7.68.2.4 Inband blocking for interband EN-DC including FR2 (3 Ccs) 7.68.2.4 Inband blocking for interband EN-DC including FR2 (5 Ccs) 7.68.2.4 Inband blocking for interband EN-DC including FR2 (5 Ccs) 7.68.3.1 Out-of-band blocking for interband EN-DC including FR2 (5 Ccs) 7.68.3.2 Out-of-band blocking for interband EN-DC including FR2 (5 Ccs) 7.68.3.3 Out-of-band blocking for interband EN-DC including FR2 (5 Ccs) 7.68.3.3 Out-of-band blocking for interband EN-DC including FR2 (5 Ccs) 7.68.3.3 Out-of-band blocking for interband EN-DC including FR2 (5 Ccs) 7.68.3.3 Out-of-band blocking for interband EN-DC including FR2 (5 Ccs) 7.68.3.3 Out-of-band blocking for interband EN-DC including FR2 (5 Ccs) 7.68.3.3 Out-of-band blocking for interband EN-DC including FR2 (5 Ccs) 7.68		O	
band EN-DC including FR2 (a Ccs) 7.58.4. 1.2 Adjacent Channel Selectivity for interband EN-DC including FR2 (4 Ccs) 7.58.4. 1.3 Adjacent Channel Selectivity for interband EN-DC including FR2 (6 Ccs) 7.58.4. 1.4 Adjacent Channel Selectivity for interband EN-DC including FR2 (6 Ccs) 7.58.4. 1.4 Adjacent Channel Selectivity for interband EN-DC including FR2 (6 Ccs) 7.68.2.1 Inband blocking for intra-band control process of the process of th		Same as clause 7.5A in 1S 38.521-2 [9]	
As a scalause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  TBD  Same as clause 7.6.2 in TS 38.521-1 [8]  TBD  TBD  TBD  TBD  TBD  TBD  TBD  TB			
As a scalause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-2 [9]  Same as clause 7.5A in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  TBD  Same as clause 7.6.2 in TS 38.521-1 [8]  TBD  TBD  TBD  TBD  TBD  TBD  TBD  TB	band EN-DC including FR2		
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DC in FR1 (2 CČs)  VB pilink power measurement same as 6.2B.1.1  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.2  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3  FR1 (2 CCs)  7.6B.2.3 1.1 Inband blocking for inter-band EN-DC within FR1 (4 CCs)  7.6B.2.3 1.2 Inband blocking for EN-DC within FR1 (4 CCs)  7.6B.2.3 1.3 Inband blocking for EN-DC within FR1 (5 CCs)  7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.3 Dut-of-band BN-DC inter-band EN-DC int			
7.6B.2.2 Inband blocking for inter-band EN-DC in FR1 (2 CCs) 7.6B.2.3 Inband blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.2.3 1.1 Inband blocking for EN-DC within FR1 (2 CCs) 7.6B.2.3 1.2 Inband blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3 1.3 Inband blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3 1.3 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3 1.3 Inband blocking for EN-DC within FR1 (5 CCs) 7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.3 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4 1.3 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.1 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC inter-ba			
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intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.2.3 Inband blocking for inter-band EN-DC within FR1 (3 CCs) 7.6B.2.3 1.1 Inband blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3 1.2 Inband blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3 1.2 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3 1.3 Inband blocking for EN-DC within FR1 (5 CCs) 7.6B.2.3 1.3 Inband blocking for EN-DC within FR1 (5 CCs) 7.6B.2.4 1.3 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4 1.2 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.5 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4 1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC infer		Same as clause 7.6.2 in TS 38.521-1 [8]	
EN-DC in FR1 (2 CCs) 7.6B.2.3 Inband blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.2.3 1.1 Inband blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3 1.2 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3 1.3 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3 1.3 Inband blocking for EN-DC within FR1 (5 CCs) 7.6B.2.4 Inband blocking for EN-DC within FR1 (5 CCs) 7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4 1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.3 1 Out-of-band blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.3 1 Out-of-band blocking for inter-band EN-DC infert (2 CCs) 7.6B.3.3 3 Out-of-band blocking for inter-band EN-DC infert (2 CCs) 7.6B.3.3 1 Out-of-band blocking for inter-band EN-DC infert (2 CCs) 7.6B.3.3 1 Out-of-band blocking for inter-band EN-DC infert (2 CCs) 7.6B.3.3 1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1 Inder-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1 Inder-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1 Inder-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1 Inder-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1 Inder-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1 Inder-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1 Inder-band EN-DC within FR1 (2			
7.6B.2.4_1.1 Inband blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.2.3_1.1 Inband blocking for EN-DC within FR1 (3 CCs)  7.6B.2.3_1.2 Inband blocking for EN-DC within FR1 (4 CCs)  7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (5 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.3_1.1 Out-of-band blocking for intra-band Contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for inter-band EN-DC inter-band EN		Opinik power measurement same as 6.28.1.2.	
inter-band EN-DC within FR1 (2 CCs) 7.6B.2.3_1.1 Inband blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3_1.2 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.3_1.1 (2			
inter-band EN-DC within FR1 (2 CCs) 7.6B.2.3_1.1 Inband blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3_1.2 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.3_1.1 (2	7.6B.2.3 Inband blocking for	Same as clause 7.6.2 in TS 38.521-1 [8]	<del>-</del>
FR1 (2 CCs) 7.6B.2.3_1.1 Inband blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3_1.2 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.3_1 Out-of-band blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.2 Out-of-band blocking for intra-band and contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band encontiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC int			
7.6B.2.3 _ 1.1 Inband blocking for EN-DC within FR1 (3 CCs)       Same as clause 7.6A.2.1 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.         7.6B.2.3 _ 1.2 Inband blocking for EN-DC within FR1 (4 CCs)       Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3.         8 as as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3.       Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3.         7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs)       TBD         7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (6 CCs)       TBD         7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)       TBD         7.6B.3.1 Out-of-band blocking for inter-band BN-DC including FR2 (6 CCs)       TBD         7.6B.3.2 Out-of-band blocking for inter-band BN-DC including FR2 (6 CCs)       MU for NR CC downlink power same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.2.         7.6B.3.3 Out-of-band blocking for intra-band and blocking for intra-band and blocking for intra-band BN-DC including fr intra-band BN-DC in		Opilitik power measurement same as 0.25.1.5.	
blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3 1.2 Inband blocking for EN-DC within FR1 (4 CCs) Viplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as 7.6.2 in TS 38.521-2 [9] In the power measurement same as 6.2B.1.3.  In the power measurement same a			
blocking for EN-DC within FR1 (3 CCs) 7.6B.2.3 1.2 Inband blocking for EN-DC within FR1 (4 CCs) Viplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as 7.6.2 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.2B.1.3. Same as 7.6.2 in TS 38.521-2 [9] In the power measurement same as 6.2B.1.3.  In the power measurement same a	7.6B.2.3 1.1 Inband	Same as clause 7.6A.2.1 in TS 38.521-1 [8]	
FR1 (3 CCs) 7.6B.2.3_1.2 Inband blocking for EN-DC within FR1 (4 CCs) 7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (5 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (2 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.2 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.2 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band enoncontiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)			
7.6B.2.3_1.2 Inband blocking for EN-DC within FR1 (4 CCs)  7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (5 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band elocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band eloc		Opinik power measurement same as 6.25.1.5.	
blocking for EN-DC within FR1 (4 CCs) 7.68.2.3.1.3 Inband blocking for EN-DC within FR1 (5 CCs) 7.68.2.4.1 Inband blocking for inter-band EN-DC including FR2 (2 CCs) 7.68.2.4.1.3 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.68.2.4.1.3 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.68.2.4.1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.68.2.4.1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.68.2.4.1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.68.3.1 Out-of-band blocking for inter-band contiguous EN-DC in FR1 (2 CCs) 7.68.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.68.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.68.3.3 Out-of-band blocking for intra-band end end end end end end end end end e			
blocking for EN-DC within FR1 (4 CCs)  7.6B.2.3.1.3 Inband blocking for EN-DC within FR1 (5 CCs)  7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4.1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4.1.2 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4.1.3 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4.1.3 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.2.4.1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band enon-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band EN-DC within FR1 (2 CCs)  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Dylink power measurement same as 6.2B.1.3.  Dylink power measurement same as 6.2B.1.3.  Dylink power measurement same as 6.2B.1.3.	7.6B.2.3_1.2 Inband	Same as clause 7.6.2 in TS 38.521-1 [8] for each	
FR1 (4 CCs)  7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (5 CCs)  7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band concontiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band concontiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band concontiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band concontiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band endocking for intra-band endocking for intra-band endocking for intra-band endocking for intra-band EN-DC within FR1 (2 CCs)  Same as clause 7.6.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.2.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8].  Uplink power measurement same as 6.2B.1.3.	blocking for EN-DC within		
7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (5 CCs)  7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band EN-DC including FR2 (6 CCs)  7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band EN-DC within FR1 (2 CCs)  Same as clause 7.6.3 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.			
blocking for EN-DC within FR1 (5 CCs)  7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band EN-DC including FR2 (6 CCs)  7.6B.3.2 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band EN-DC within FR1 (2 CCs)  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.			
FR1 (5 CCs)  7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  Same as clause 7.6.2 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.	7.6B.2.3_1.3 Inband		
FR1 (5 CCs)  7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  Same as clause 7.6.2 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.	blocking for EN-DC within	component carrier.	
7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.2 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for intra-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.			
inter-band EN-DC including FR2 (2 CCs) 7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3. Uplink power measurement same as 6.2B.1.3. Same as clause 7.6.3.1 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.			
FR2 (2 CCs)  7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.		Same as 7.6.2 in 15 38.521-2 [9]	
7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)	inter-band EN-DC including		
7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs) 7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)	FR2 (2 CCs)		
blocking for inter-band ENDC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band ENDC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band ENDC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band ENDC including FR2 (6 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band ENDC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band end blocking for intra-band end blocking for intra-band end blocking for intra-band end blocking for intra-band ENDC within FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band ENDC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)		TDD	
DC including FR2 (3 CCs)  7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band ron-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band ron-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band ron-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band EN-DC within FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band EN-DC within FR1 (2 CCs)  7.6B.3.3 1.1 Out-of-band blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within blocking for EN-DC within		עסו	
7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs) 7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs) 7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs) 7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)			
7.6B.2.4_1.2 Inband blocking for inter-band ENDC including FR2 (4 CCs) 7.6B.2.4_1.3 Inband blocking for inter-band ENDC including FR2 (5 CCs) 7.6B.2.4_1.4 Inband blocking for inter-band ENDC including FR2 (6 CCs) 7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs) 7.6B.3.2 Out-of-band blocking for intra-band noncontiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for intra-band noncontiguous EN-DC in FR1 (2 CCs) 7.6B.3.3 Out-of-band blocking for inter-band ENDC within FR1 (2 CCs) 7.6B.3.3 1.1 Out-of-band blocking for inter-band ENDC within FR1 (2 CCs) 7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.  TBD  TBD  TBD  TBD  TBD  WU for NR CC downlink power same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.1.  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.	DC including FR2 (3 CCs)		
blocking for inter-band EN-DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within  Same as clause 7.6A.3.1 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.		TBD	
DC including FR2 (4 CCs)  7.6B.2.4_1.3 Inband blocking for inter-band EN- DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN- DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non- contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN- DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for inter-band EN- DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.		·	
7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band EN-DC within FR1 (2 CCs)  7.6B.3.3 1.1 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)			
blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.			
blocking for inter-band EN-DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.	7.6B.2.4_1.3 Inband	TBD	
DC including FR2 (5 CCs)  7.6B.2.4_1.4 Inband blocking for inter-band EN- DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non- contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN- DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.2.  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.			
7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.  TBD  MU for NR CC downlink power same as clause 7.6.3 in TS 38.521-1 [8].  Uplink power measurement same as 6.2B.1.1.			
blocking for inter-band EN-DC including FR2 (6 CCs)  7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.			
7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.		TBD	
7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Same as clause 7.6A.3.1 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.			
7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within DC wit			
blocking for intra-band contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (2 CCs)		NULL ND 00 I III	
contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Same as clause 7.6A.3.1 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.1.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.		MU for NR CC downlink power same as clause 7.6.3 in	
contiguous EN-DC in FR1 (2 CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Same as clause 7.6A.3.1 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.1.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.	blocking for intra-band	TS 38.521-1 [8].	
CCs)  7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Uplink power measurement same as 6.2B.1.2.  Same as clause 7.6.3 in TS 38.521-1 [8].  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8].  Uplink power measurement same as 6.2B.1.3.			
7.6B.3.2 Out-of-band blocking for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Same as clause 7.6.3 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.	`	opinik powor mododroment same as 0.20.1.1.	
blocking for intra-band non- contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN- DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within  Same as clause 7.6A.3.1 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.			
blocking for intra-band non- contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band blocking for inter-band EN- DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within  Same as clause 7.6A.3.1 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.	7.6B.3.2 Out-of-band	Same as clause 7.6.3 in TS 38.521-1 [8]	
contiguous EN-DC in FR1 (2 CCs)  7.6B.3.3 Out-of-band			
CCs)  7.6B.3.3 Out-of-band		Sp portor modelaroment barrio de 0.25. 1.2.	
7.6B.3.3 Out-of-band Same as clause 7.6.3 in TS 38.521-1 [8].  Uplink power measurement same as 6.2B.1.3.  DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.			
blocking for inter-band EN- DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.			
blocking for inter-band EN- DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.  Uplink power measurement same as 6.2B.1.3.	7.6B.3.3 Out-of-band	Same as clause 7.6.3 in TS 38.521-1 [8].	
DC within FR1 (2 CCs)  7.6B.3.3_1.1 Out-of-band Same as clause 7.6A.3.1 in TS 38.521-1 [8]. blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.			
7.6B.3.3_1.1 Out-of-band Same as clause 7.6A.3.1 in TS 38.521-1 [8]. Uplink power measurement same as 6.2B.1.3.		Opinik power incasulciniciil saine as 0.20.1.3.	
blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.			
blocking for EN-DC within Uplink power measurement same as 6.2B.1.3.	7.6B.3.3_1.1 Out-of-band	Same as clause 7.6A.3.1 in TS 38.521-1 [8].	
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Unifor Nover Teaching to the Component carrier.  1. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.2.  1. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.2.  1. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.2.  1. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  1. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  2. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  3. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  3. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  4. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  4. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.7 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.7 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.7 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.7 in TS 38.521-1 [8] Uplink power measurement same as 6.2B.1.3.  5. Same as clause 7.8.2 in TS 38.521-1 [8] Uplink power measurement for same as 6.2B.1.3.  5. Same as clause 7.8.2 in TS 38.521-1 [8] Uplink power measurement for same as 6.2B.1.3.  5. Same as clause 7.8.2 in TS 38.521-1 [8] Uplink power measurement for same as 6.2B.1.3.  5. Same as clause 7.8.2 in TS 38.521-1 [8] Uplink power measurement for same as 6.2B.1.3.  5. Same as clause 7.8.2 in TS 38.521-1 [8] Uplink power measurement for sam	7.00.4.4.N	MILES ND CO describel a service a service 7.0.4 is	
contiguous EN-DC in FR1 (2 CCs) 7.68.4.2.1 Narrow band blocking for inter-band EN-DC within FR1 (2 CCs) 7.68.4.3.1 Narrow band blocking for inter-band EN-DC within FR1 (2 CCs) 7.68.4.3.1 Narrow band blocking for EN-DC within FR1 (2 CCs) 7.68.4.3.1 Narrow band blocking for EN-DC within FR1 (2 CCs) 7.68.4.3.1 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.68.4.3.1.2 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.68.4.3.1.3 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.68.4.3.1.3 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.68.4.3.1.3 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.78.3 Spurious Response for inter-band contiguous EN-DC in FR1 (2 CCs) 7.78.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs) 7.78.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs) 7.78.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs) 7.78.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs) 7.78.3 Spurious Response for EN-DC within FR1 (2 CCs) 7.78.3 Spurious Response for EN-DC within FR1 (2 CCs) 7.78.3 Spurious Response for inter-band EN-DC within FR1 (3 CCs) 7.78.3 Spurious Response for EN-DC within FR1 (3 CCs) 7.78.3 Spurious Response for inter-band intermodulation for interband intermodulation for interband intermodulation for interband intermodulation for interband intermodulation for EN-DC within FR1 (3 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (3 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (3 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.88.2.3 I Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.88.2.3 I Wideband I	7.6B.4.1 Narrow band	MU for NR CC downlink power same as clause 7.6.4 in	
Same as clause 7.6.4 in TS 38.521-1 [8] Uplink power measurement same as 6.28.1.2. CCS) 7.68.4.3 Narrow band blocking for inter-band ENDC within FRI (2 CCs) 7.68.4.3 Narrow band blocking for Inter-band ENDC within FRI (2 CCs) 7.68.4.3 1.1 Narrow band blocking for ENDC within FRI (3 CCs) 7.68.4.3 1.2 Narrow band blocking for ENDC within FRI (3 CCs) 7.68.4.3 1.3 Narrow band blocking for ENDC within FRI (3 CCs) 7.68.4.3 1.3 Narrow band blocking for ENDC within FRI (3 CCs) 7.68.4.3 1.3 Narrow band blocking for ENDC within FRI (5 CCs) 7.68.4.3 1.3 Narrow band blocking for ENDC within FRI (5 CCs) 7.68.4.3 1.3 Narrow band blocking for ENDC within FRI (5 CCs) 7.68.4.3 1.3 Narrow band blocking for ENDC within FRI (5 CCs) 7.68.2 Spurious Response for Inter-band contiguous ENDC in FRI (2 CCs) 7.78.3 1.1 Spurious Response for inter-band ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (3 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.2 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within FRI (5 CCs) 7.78.3 1.1 Spurious Response for ENDC within			
Same as clause 7.6.4 in TS 38.521-1 [8]	`	Oplink power measurement same as 6.28.1.1.	
Diocking for intra-band non-configuous EN-DC in FR1 (2 CCs)		Comp on playing 7.0.4 in TO 20.524.4 [0]	
contiguous EN-DC in FR1 (2 CCS) 7.68.4.3.1 Narrow band blocking for inter-band EN-DC within FR1 (2 CCS) 7.68.4.3.1 Narrow band blocking for EN-DC within FR1 (2 CCS) 7.68.4.3.1.1 Narrow band blocking for EN-DC within FR1 (2 CCS) 7.68.4.3.1.2 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.68.4.3.1.3 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.78.1.3 Same as clause 7.6.4 in TS 38.521-1 [8] for each component carrier. 1.9 Uplink power measurement same as 6.28.1.3.  Same as clause 7.6.4 in TS 38.521-1 [8] for each component carrier. 1.9 Uplink power measurement same as 6.28.1.3. 7.78.1.3 Spurious Response for intra-band contiguous EN-DC in FR1 (2 CCs) 7.78.3 Spurious Response for intra-band contiguous EN-DC in FR1 (2 CCs) 7.78.3 Spurious Response for intra-band contiguous EN-DC in FR1 (2 CCs) 7.78.3.1.1 Spurious Response for intra-band for EN-DC within FR1 (4 CCs) 7.78.3.1.1 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.1.1 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.1.2 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.1.2 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.1.2 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.1.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.1.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.1.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.78.3.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.78.3.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.78.3.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.78.3.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.78.3.3 Spurious Emissions for intra-band contiguous EN-DC within FR1 (5 CCs) 7.78.3.3 Spurious Emissions for intra-band contiguous EN-DC within FR1 (5 CCs) 7.78.3.3 Spurious Emissions for intra-band contiguous En-DC within FR1 (5 CCs) 7.78.3.3 Spu			
Same as clause 7.6.4 in TS 38.521-1 [8]		Oplink power measurement same as 6.26.1.2.	
Same as clause 7.6.4 in TS 38.521-1 [8]			
Docking for inter-band EN-DC within FR1 (2 CCs)		Comp on cloude 7.6.4 in TC 20.524.4 [0]	
DC within FR1 (2 CCs)   7.6B.4.3.1.1 Narrow band blocking for EN-DC within FR1 (4 CCs)   7.6B.4.3.1.2 Narrow band blocking for EN-DC within FR1 (4 CCs)   7.6B.4.3.1.3 Narrow band blocking for EN-DC within FR1 (5 CCs)   7.6B.4.3.1.3 Narrow band blocking for EN-DC within FR1 (5 CCs)   7.7B.1 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs)   7.7B.3 Spurious Response for intra-band EN-DC within FR1 (5 CCs)   7.7B.3 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs)   7.7B.3 Spurious Response for inter-band EN-DC within FR1 (5 CCs)   7.7B.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs)   7.7B.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (2 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (2 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (2 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (4 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (4 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (4 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (4 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (4 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (6 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (6 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (6 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (6 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (6 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (6 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (6 CCs)   7.7B.3 Spurious Response for EN-DC within FR1 (6			
Same as clause 7.6.4.1 in TS 38.521-1 [8]		Oplink power measurement same as 6.26.1.3.	
blocking for EN-DC within FR1 (3 CCs) 7.6B. 43. 1.2 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.6B. 43. 1.3 Narrow band blocking for EN-DC within FR1 (5 CCs) 7.7B. 1 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.7B. 3 Spurious Response for intra-band for intra-band contiguous EN-DC in FR1 (2 CCs) 7.7B. 3 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.7B. 3 Spurious Response for intra-band for int		O 7 0A 44 in TO 00 504 4 [0]	
FR1 (3 CCs) 7.6B.43.12 Narrow band blocking for EN-DC within FR1 (4 CCs) 7.6B.43.1.3 Narrow band blocking for EN-DC within FR1 (5 CCs) 7.6B.43.1.3 Narrow band blocking for EN-DC within FR1 (5 CCs) 7.7B.1 Spurious Response for intra-band contiguous EN-DC in FR1 (5 CCs) 7.7B.2 Spurious Response for intra-band and entermodulation for intra-band intermodulation for intra-band non-contiguous EN-DC in FR1 (5 CCs) 7.7B.3.1.1 Spurious Response for intra-band EN-DC within FR1 (4 CCs) 7.7B.3.1.1 Spurious Response for intra-band intermodulation for intra-band non-contiguous EN-DC in FR1 (5 CCs) 7.7B.3.1.1 Spurious Response for intra-band intermodulation for intra-band non-contiguous EN-DC in FR1 (5 CCs) 7.7B.3.1.1 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3.1.2 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3.1.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3.1.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3.1.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3.1.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response			
James as clause 7.6.4 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.3.  Same as clause 7.6.4 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.3.  Same as clause 7.6.4 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.3.  MU for NR CC downlink power same as clause 7.7 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.1.  Same as clause 7.7 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.1.  Same as clause 7.7 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.1.  Same as clause 7.7 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.2.  Same as clause 7.7 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.2.  Same as clause 7.7 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.2.  Same as clause 7.7 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.2.  Same as clause 7.8 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.2.  Same as clause 7.8 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.2.  Same as clause 7.8 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.2.  Same as clause 7.8 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.3.  Same as clause 7.8 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.1.  Same as clause 7.8 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.3.  Same as clause 7.8 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.3.  Same as clause 7.8 in TS 38.521-1 [8] for each component carrier. Uplink power measurement same as 6.28.1.3.  Same as clause 7.8 in TS 38.521		Oplink power measurement same as 6.28.1.3.	
blocking for EN-DC within FR1 (4 CCs) 7.6B. 4.3. 1.3 Narrow band blocking for EN-DC within FR1 (5 CCs) 7.7B.1 Spurious Response for intra-band contiguous EN-DC in FR1 (2 CCs) 7.7B.2 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.7B.3 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs) 7.7B.3 Spurious Response for intra-band fon-contiguous EN-DC in FR1 (2 CCs) 7.7B.3 Spurious Response for intra-band fon-contiguous EN-DC in FR1 (2 CCs) 7.7B.3 Spurious Response for intra-band fon-contiguous EN-DC in FR1 (2 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (4 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-DC within FR1 (5 CCs) 7.7B.3 Spurious Response for EN-D		O	
FR1 (4 CCs)  Juplink power measurement same as 6.2B.1.3.  Same as clause 7.6.4 in TS 38.521-1 [8] for each component carrier.  Juplink power measurement same as 6.2B.1.3.  MU for NR CC downlink power measurement same as 6.2B.1.1.  Juplink power measurement same as 6.2B.1.3.  MU for NR CC downlink power measurement same as 6.2B.1.1.  Juplink power measurement same as 6.2B.1.1.  Juplink power measurement same as 6.2B.1.1.  Juplink power measurement same as 6.2B.1.1.  Juplink power measurement same as 6.2B.1.2.  Zero same as clause 7.7 in TS 38.521-1 [8] [3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.			
Same as clause 7.6.4 in TS 38.521-1 [8] for each blocking for EN-DC within FR1 (5 CCs)   Same as clause 7.7 in TS 38.521-1 [8]   Uplink power measurement same as 6.28.1.3.			
Intermodulation for intra-band conceptions for EN-DC within FR1 (2 CCs)   T/B.1 Spurious Response for intra-band contiguous EN-DC in FR1 (2 CCs)   T/B.2 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs)   T/B.3 Spurious Response for intra-band spurious EN-DC in FR1 (2 CCs)   T/B.3 Spurious Response for inter-band EN-DC within FR1 (3 CCs)   T/B.3 1.1 Spurious Response for EN-DC within FR1 (3 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (3 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (4 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (4 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (4 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (4 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (4 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (4 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (3 CCs)   T/B.3 1.2 Spurious Response for EN-DC within FR1 (3 CCs)   T/B.3 1.2 Spurious EN-DC in FR1   T/B.3 1.2 Spurious EN-DC within FR1 (3 CCs)   T/B.3 1.2 Spurious EN-DC within FR1 (3 CCs)   T/B.3 1.2 Spurious EN-DC within FR1 (4 CCs)   T/B.3 1.2 Spurious EN-DC within FR1 (5 CCs)   T/B.3 1.3 Wideband Intermodulation for intra-band non-contiguous EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)   T/B.3 2.3 1.4			
FR1 (5 CCs)			
T.7B. 1 Spurious Response for intra-band contiguous EN-DC in FR1 (2 CCs)   Same as clause 7.7 in TS 38.521-1 [8].   Uplink power measurement same as 6.2B.1.1.   Same as clause 7.7 in TS 38.521-1 [8].   Uplink power measurement same as 6.2B.1.2.			
for intra-band contiguous EN-DC in FR1 (2 CCs)  7.7B.2 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs)  7.7B.3 Spurious Response for intra-band EN-DC within FR1 (2 CCs)  Same as clause 7.7 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.2.  Same as clause 7.7 in TS 38.521-1 [8].  Uplink power measurement same as 6.2B.1.2.  Same as clause 7.7 in TS 38.521-1 [8].  Uplink power measurement same as 6.2B.1.3.  FR1 (3 CCs)  7.7B.3.1.2 Spurious Response for EN-DC within FR1 (2 CCs)  7.7B.3.1.2 Spurious Response for EN-DC within FR1 (4 CCs)  Response for EN-DC within FR1 (4 CCs)  7.8B.2.1 Wideband Intermodulation for intraband contiguous EN-DC in FR1  7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC within FR1 (4 CCs)  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.2.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-			
EN-DC in FR1 (2 CCs)   Cylink power measurement same as 6.2B.1.2   Same as clause 7.7 in TS 38.521-1 [8]   Uplink power measurement same as 6.2B.1.2   Uplink power measurement same as 6.2B.1.2   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.2   Uplink power measurement same as 6.2B.1.2   Uplink power measurement same as 6.2B.1.2   Uplink power measurement same as 6.2B.1.2   Uplink power same as clause 7.8.2 in TS 38.521-1 [8]   Uplink power measurement same as 6.2B.1.2   Uplink power measurement same as 6.2B.1.1   Uplink power measurement same as 6.2B.1.1   Uplink power measurement same as 6.2B.1.1   Uplink power measurement same as 6.2B.1.1   Uplink power measurement same as 6.2B.1.1   Uplink power measurement same as 6.2B.1.3   Uplink power measurement same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Uplink power measurement for same as 6.2B.1.3   Up			
3. Same as clause 7.7 in TS 38.521-1 [8]   Uplink power measurement same as 6.2B.1.2.			
Uplink power measurement same as 6.2B.1.2.  1. Same as clause 7.7 in TS 38.521-1 [8].  1. Suprious Response for EN-DC within FR1 (2 CCs)  1. TB.3 _1.1 Spurious Same as clause 7.7 in TS 38.521-1 [8] for each component carrier.  1. Uplink power measurement same as 6.2B.1.2.  1. Same as clause 7.7 in TS 38.521-1 [8] for each component carrier.  1. Uplink power measurement same as 6.2B.1.2.  2. Same as clause 7.7 in TS 38.521-1 [8] for each component carrier.  1. Uplink power measurement same as 6.2B.1.2.  2. Same as clause 7.7 in TS 38.521-1 [8] for each component carrier.  1. Uplink power measurement same as 6.2B.1.2.  2. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power measurement same as 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same as 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same as 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same as 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same as 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same sa 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same as 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same sa 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same sa 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Uplink power same sa 6.2B.1.2.  3. Same as clause 7.8.2.1 [8] for each component carrier.  1. Same as clause 7.8.2.1 [8] for each component carrier.  1. Same as clause 7.8.2.1 [8] for each component carrier.  1. Same as clause 7.8.2.1 [8] for each component carrier.  1. Same as clause 7.8.2.1 [8] for each component carrier.  1. Same as clause 7.8.2.1 [8] for each component carrier.  1. Same as clause 7.8.2.1 [8] for each component carrier.  1. Same as clause 7.8.2.1 [8] for each component carrier			
contiguous EN-DC in FR1 (2 CCs) 7.7B.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs) 7.7B.3_1.1 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3_1.2 Spurious Response for EN-DC within FR1 (3 CCs) 7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC within FR1 (3 CCs) 7.8B.2.3_1.1 Spurious Response for EN-DC within FR1 (4 CCs) 7.8B.2.3_1.1 Spurious Response for EN-DC within FR1 (4 CCs) 7.8B.2.3_1.1 Spurious Response for EN-DC within FR1 (4 CCs) 7.8B.2.3_1.1 Spurious Response for EN-DC within FR1 (4 CCs) 7.8B.2.3_1.1 Spurious EN-DC within FR1 (4 CCs) 7.8B.2.3_1.1 Spurious EN-DC within FR1 (4 CCs) 7.8B.2.3_1.1 Spurious EN-DC within FR1 (4 CCs) 7.8B.2.3_1.1 Spurious EN-DC within FR1 (5 CCs) 7.8B.2.3_1.1 Spurious EN-DC within FR1 (5 CCs) 7.8B.2.3_1.1 Spurious Environment			
7.7B.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs)  7.7B.3.1 Spurious Response for EN-DC within FR1 (3 CCs)  7.7B.3.1.2 Spurious Response for EN-DC within FR1 (4 CCs)  7.8B.2.1 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3 1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3 1.1 Wideband Intermodulation for intraband End End End End End End End End End E		Opinik power measurement same as 6.26.1.2.	
7.7B.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs) 7.7B.3.1.1 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3.1.2 Spurious Response for EN-DC within FR1 (3 CCs) 7.7B.3.1.2 Spurious Response for EN-DC within FR1 (4 CCs) 7.8B.2.1 Wideband Intermodulation for intraband contiguous EN-DC in FR1 7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1 7.8B.2.3 Wideband Intermodulation for intraband non-contiguous EN-DC within FR1 (3 CCs) 7.8B.2.3 1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs) 7.8B.2.3 1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs) 7.8B.2.3 1.3 Wideband Intermodulation for EN-DC within FR1 (3 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs) 7.8B.2.3 1.4 Wideband Intermodulation FR1 (5 CCs)			
for inter-band EN-DC within FR1 (2 CCs)  7.7B.3_1.1 Spurious Response for EN-DC within FR1 (3 CCs)  7.7B.3_1.2 Spurious Response for EN-DC within FR1 (4 CCs)  7.8B.2.1 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3_1.1 Wideband Intermodulation for intraband non-contiguous EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for intraband non-contiguous EN-DC within FR1 (3 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3_1.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within		Como os eleuro 7.7 in TC 20 521 1 [0]	
FR1 (2 CCs)  7.7B.3_1.1 Spurious Response for EN-DC within FR1 (3 CCs)  7.7B.3_1.2 Spurious Response for EN-DC within FR1 (4 CCs)  7.8B.2.1 Wideband Intermodulation for intraband con-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband Intermodulation for FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3 L1 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3 L1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3 1.3 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3 1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.5 uvideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.5 uvideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.5 uvideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.5 uvideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.5 uvideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.5 uvideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.5 uvideband Intermodulation FR1 (5 CCs)  7.8B.2.3 1.5 uvideband Intermodulation FR1 (5 CCs)  7.8B.2 Spurious Emissions for intra-band contiguous  Same as clause 7.7 in TS 38.521-1 [8]  Uplink power measurement same as 6.2B.1.2.  Uplink power measurement same as 6.2B.1.2.  Uplink power measurement for same as 6.2B.1.3.  Uplink power measurement for same as 6.2B.1.3.  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as claus			
7.78.3.1.1 Spurious Response for EN-DC within FR1 (3 CCs)		Oplink power measurement same as 6.26.1.5.	
Response for EN-DC within FR1 (3 CCs)  Response for EN-DC within FR1 (4 CCs)  Response for EN-DC within FR1 (4 CCs)  Response for EN-DC within FR1 (4 CCs)  Response for EN-DC within FR1 (4 CCs)  Response for EN-DC within FR1 (4 CCs)  Response for EN-DC within FR1 (4 CCs)  Response for EN-DC within FR1 (4 CCs)  Response for EN-DC within FR1 (5 CCs)  Response for EN-DC within FR1 (2 CCs)  Response for EN-DC		Same as clause 7.7 in TS 38 521-1 [8] for each	
FR1 (3 CCs)  7.7B.3_1.2 Spurious Response for EN-DC within FR1 (4 CCs)  7.8B.2.1 Wideband Intermodulation for intraband contiguous EN-DC in FR1  7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 1.1 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3 1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3 1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3 1.2 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3 1.3 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.8B.2 Spurious Emissions for intra-band ono-contiguous EN-DC within FR1 (2 CCs)  7.8B.2 Spurious Emissions for intra-band ono-contiguous EN-DC within FR1 (2 CCs)  7.8B.2 Spurious Emissions for intra-band ono-contiguous EN-DC within FR1 (2 CCs)  7.8B.2 Spurious Emissions for intra-band ono-contiguous EN-DC within FR1 (2 CCs)  7.8B.2 Spurious Emissions for intra-band ono-contiguous EN-DC within FR1 (2 CCs)  7.8B.2 Spurious Emissions for intra-band ono-contiguous EN-DC within FR1 (2 CCs)			
Rasponse for EN-DC within FR1 (4 CCs)			
Response for EN-DC within FR1 (4 CCs)  Component carrier.  Uplink power measurement same as 6.2B.1.2.  T.8B.2.1 Wideband Intermodulation for intraband contiguous EN-DC in FR1  7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for intraband EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3 1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3 1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3 1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3 1.5 purious Emissions for intra-band contiguous En-DC within FR1 (2 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous En-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band contiguous En-DC within FR1 (2 CCs)			
FR1 (4 CCs)  7.8B.2.1 Wideband Intermodulation for intraband contiguous EN-DC in FR1  7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3 1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (8 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (8 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (8 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (8 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (8 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (8 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1			
T.8B.2.1 Wideband   Intermodulation for intraband contiguous EN-DC in FR1   Sa.52.1   TS 38.521-1			
Intermodulation for intraband contiguous EN-DC in FR1  7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3 L.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.5 Yideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2 Y			
band contiguous EN-DC in FR1  7.8B.2.2 Wideband Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.6 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within			
FR1  7.8B.2.2 Wideband Intermodulation for intraband non-contiguous ENDC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.1 Spurious Emissions for intra-band non-contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within			
T.8B.2.2 Wideband   Intermodulation for intraband non-contiguous ENDC in FR1   T.8B.2.3 Wideband   Intermodulation for interband EN-DC in FR1   Uplink power measurement for same as 6.2B.1.3.   Uplink power measurement for same as 6		opinik powor modedirement same de 6.25.1.1.	
Intermodulation for intraband non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Videband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Videband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Videband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Uplink power measurement for same as 6.2B.1.3.  Uplink power measurement for same as 6.2B.1.3.  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.		Same as clause 7.8.2 in TS 38.521-1.[8]	
band non-contiguous EN-DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.2 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within			
DC in FR1  7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.5 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.8A.2 in		opinik powor modedi omone tor camo de ci.zb. i izi	
7.8B.2.3 Wideband Intermodulation for interband EN-DC in FR1 7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs) 7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs) 7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs) 7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within	<u> </u>		
Intermodulation for interband EN-DC in FR1  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within		Same as clause 7.8.2 in TS 38.521-1 [8]	
band EN-DC in FR1  7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within			
7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within		The second secon	
Intermodulation for EN-DC within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within		Same as clause 7.8A.2.1 in TS 38.521-1 [8]	
within FR1 (3 CCs)  7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within for EN-DC within for intra-band non-contiguous EN-DC within for intra-band non-contiguous EN-DC within for intra-band non-contiguous EN-DC within			
7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs) 7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs) 7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs) 7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs) 7.9B.2 Spurious Emissions for intra-band noncontiguous EN-DC within FR1 (2 CCs) 7.9B.2 Spurious Emissions for intra-band noncontiguous EN-DC within FR1 (2 CCs) 7.9B.2 Spurious Emissions for intra-band noncontiguous EN-DC within FR1 (2 CCs) 7.9B.2 Spurious Emissions for intra-band noncontiguous EN-DC within			
Intermodulation for EN-DC within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within		Same as clause 7.8A.2 in TS 38.521-1 [8]	
within FR1 (4 CCs)  7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non- contiguous EN-DC within  Same as clause 7.8A.2 in TS 38.521-1 [8] Uplink power measurement for same as 6.2B.1.3.  Uplink power measurement for same as 6.2B.1.3.  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.9 in TS 38.521-1 [8]  Same as clause 7.9 in TS 38.521-1 [8]			
7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within		, , , , , , , , , , , , , , , , , , , ,	
Intermodulation for EN-DC within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within		Same as clause 7.8A.2 in TS 38.521-1 [8]	
within FR1 (5 CCs)  7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non- contiguous EN-DC within  Same as clause 7.8A.2 in TS 38.521-1 [8]  Uplink power measurement for same as 6.2B.1.3.  Same as clause 7.9 in TS 38.521-1 [8]  Same as clause 7.9 in TS 38.521-1 [8]			
7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within	within FR1 (5 CCs)		
Intermodulation for EN-DC within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within		Same as clause 7.8A.2 in TS 38.521-1 [8]	
within FR1 (6 CCs)  7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within			
7.9B.1 Spurious Emissions for intra-band contiguous EN-DC within FR1 (2 CCs) 7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within			
for intra-band contiguous EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non- contiguous EN-DC within		Same as clause 7.9 in TS 38.521-1 [8]	
EN-DC within FR1 (2 CCs)  7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within			
7.9B.2 Spurious Emissions Same as clause 7.9 in TS 38.521-1 [8] for intra-band non-contiguous EN-DC within			
for intra-band non- contiguous EN-DC within		Same as clause 7.9 in TS 38.521-1 [8]	
contiguous EN-DC within		1-1	

7.9B.3 Spurious Emissions	Same as clause 7.9 in TS 38.521-1 [8]	
for inter-band EN-DC within		
FR1 (2 CCs)		
7.9B.3_1.1 Spurious	Same as clause 7.9A.1 in TS 38.521-1 [8]	
Emissions for EN-DC within		
FR1 (3 CCs)		
7.9B.4 Spurious Emissions	Same as clause 7.9 in TS 38.521-2 [9]	
for inter-band EN-DC		
including FR2 (2 CCs)		

## F.2 Interpretation of measurement results (normative)

TBD

# F.3 Test Tolerance and Derivation of Test Requirements (informative)

TBD

## F.3.1 Measurement of test environments

TBD

## F.3.2 Measurement of transmitter

**Table F.3.2-1: Derivation of Test Requirements (Transmitter tests)** 

Sub clause	Test Tolerance (TT)	Formula for test requirement
6.2B.1.1 UE Maximum	Same as 6.2.1 in TS 38.521-1 [8]	·
Output Power for Intra-Band		
Contiguous EN-DC 6.2B.1.2 UE Maximum	MAX (TT <sub>LTE</sub> , TT <sub>SA</sub> )	TT <sub>LTE</sub> is TT of LTE specified in 6.2.2
Output Power for Intra-Band		in TS 36.521-1 [10].
Non-Contiguous EN-DC	TT <sub>LTE</sub>	TT is TT of EDA OA sussified in
	0.7 dB, f ≤ 3.0GHz 1.0 dB, 3.0GHz < f ≤ 4.2GHz	TT <sub>SA</sub> is TT of FR1 SA specified in 6.2.1 in TS 38.521-1 [8].
	110 05, 0.00112 11 2 1120112	6.2.1 iii 16 66.62 i 1 [6].
	TT <sub>SA</sub>	
	f ≤ 3.0GHz 0.7 dB, BW ≤ 40MHz	
	1.0 dB, 40MHz < BW ≤ 100MHz	
	3.0GHz < f ≤ 6.0GHz	
6.2B.1.3 UE Maximum	1.0 dB, BW ≤ 100MHz MAX (TT <sub>LTE</sub> , TT <sub>SA</sub> )	TT <sub>LTE</sub> is TT of LTE specified in 6.2.3
Output Power for Inter-Band	MAX (TILLE, TISA)	in TS 36.521-1 [10].
EN-DC within FR1 (1 E-	TT <sub>LTE</sub>	
UTRA CC, 1 NR CC)	0.7 dB, f ≤ 3.0GHz	TT <sub>SA</sub> is TT of FR1 SA specified in
	1.0 dB, 3.0GHz < f ≤ 4.2GHz	6.2.2 in TS 38.521-1 [8].
	TT <sub>SA</sub>	
	f ≤ 3.0GHz	
	0.7 dB, BW ≤ 40MHz 1.0 dB, 40MHz < BW ≤ 100MHz	
	3.0GHz < f ≤ 6.0GHz	
	1.0 dB, BW ≤ 100MHz	
6.2B.1.3_1 UE Maximum Output Power for Inter-Band	Same as 6.2B.1.3	
EN-DC within FR1 (2 E-		
UTRA CCs, 1 NR CC)		
6.2B.1.4 UE Maximum	Same as 6.2.1 in TS 38.521-2 [9]	
Output Power for Inter-Band EN-DC including FR2		
6.2B.1.4.1 UE Maximum	Same as 6.2.1.1 in TS 38.521-2	
Output Power for Inter-Band		
EN-DC including FR2 (2 CCs) - EIRP and TR		
6.2B.1.4_1.1.1 UE Maximum	Same as 6.2A.1.1.1 in TS 38.521-2	
Output Power for Inter-Band		
EN-DC including FR2 (3 CCs) - EIRP and TRP		
6.2B.1.4_1.1.2 UE Maximum	Same as 6.2A.1.2.1 in TS 38.521-2	
Output Power for Inter-Band		
EN-DC including FR2 (3 CCs) - Spherical Coverage		
6.2B.1.4_1.2.1 UE Maximum	Same as clause 6.2A.1.1.2 in TS 38.521-2	
Output Power for Inter-Band		
EN-DC including FR2 (3 NR CCs) - EIRP		
and TRP		
6.2B.1.4_1.2.2 UE Maximum	Same as clause 6.2A.1.2.2 in TS 38.521-2	
Output Power for Inter-Band EN-DC including FR2 (3 NR		
CCs) -		
Spherical Coverage		
6.2B.1.4_1.3.1 UE Maximum	Same as clause 6.2A.1.1.3 in TS 38.521-2	
Output Power for Inter-Band EN-DC including FR2 (4 NR		
CCs) - EIRP		
and TRP	0 1 001 1001 =0 00	
6.2B.1.4_1.3.2 UE Maximum Output Power for Inter-Band	Same as clause 6.2A.1.2.3 in TS 38.521-2	
EN-DC including FR2 (4 NR		
CCs) –		
Spherical Coverage		

		<u></u>
6.2B.1.4_1.4.1 UE Maximum	Same as clause 6.2A.1.1.4 in TS 38.521-2	
Output Power for Inter-Band		
EN-DC including FR2 (5 NR		
CCs) - EIRP		
and TRP		
6.2B.1.4_1.4.2 UE Maximum	Same as clause 6.2A.1.2.4 in TS 38.521-2	
	Same as clause 0.2A. 1.2.4 iii 13 30.321-2	
Output Power for Inter-Band		
EN-DC including FR2 (5 NR		
CCs) –		
Spherical Coverage		
6.2B.1.4_1.5.1 UE Maximum	Same as clause 6,2A,1,1,5 in TS 38,521-2	
Output Power for Inter-Band		
EN-DC including FR2 (6 NR		
CCs) - EIRP		
and TRP		
6.2B.1.4_1.5.2 UE Maximum	Same as clause 6.2A.1.2.5 in TS 38.521-2	
Output Power for Inter-Band		
EN-DC including FR2 (6 NR		
CCs) –		
Spherical Coverage		
6.2B.1.4.2 UE Maximum	Same as 6.2.1.2 in TS 38.521-2	
Output Power for Inter-Band	Jame 45 0.2. 1.2 III 10 50.021-2	
EN-DC including FR2 (2		
CCs) - Spherical Coverage		
6.2B.2.2 UE Maximum	Same as 6.2B.1.2	
Output Power reduction for		
Intra-Band Non-Contiguous		
EN-DC		
6.2B.2.3 UE Maximum	Same as 6.2B.1.3	
	Same as 0.2b. 1.5	
Output Power reduction for		
Inter-Band EN-DC within FR1		
6.2B.2.4 UE Maximum	Same as clause 6.2.2 and 6.2A.2.1 in TS	
Output Power reduction for	38.521-2 [9]	
Inter-Band EN-DC including		
FR2		
6.2B.2.4a UE Maximum	Same as clause 6.2.2_1 in TS 38.521-2 [9]	
Output Power reduction		
enhancements for Inter-Band		
EN-DC including FR2 (1 NR		
CC)		
6.2B.2.4_1.1 UE Maximum	Same as clause 6.2A.2.1 in TS 38.521-2 [9]	
Output Power reduction for		
Inter-Band EN-DC including		
FR2 (2 NR CCs)		
6.2B.3.1 UE Additional	Same as 6.2.3 in TS 38.521-1 [8]	
Maximum Output Power	Came as 0.2.0 iii 10 00.021-1 [0]	
reduction for Intra-band		
contiguous EN-DC		
6.2B.3.2 UE Additional	Same as 6.2B.1.2	
Maximum Output Power		
reduction for Intra-Band Non-		
Toduction for Intra-Datiu NOII-		
Contiguous EN-DC	Same as 6.2B.1.3	
Contiguous EN-DC 6.2B.3.3 UE Additional	Same as 6.2B.1.3	
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power	Same as 6.2B.1.3	
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN-	Same as 6.2B.1.3	
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1		
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1 6.2B.3.4 UE Additional	Same as 6.2B.1.3  Same as clause 6.2.3 in TS 38.521-2 [9]	
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1 6.2B.3.4 UE Additional Maximum Output Power		
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1 6.2B.3.4 UE Additional		
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1 6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN-		
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1 6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN- DC including FR2 (1 NR CC)	Same as clause 6.2.3 in TS 38.521-2 [9]	
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1 6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN- DC including FR2 (1 NR CC) 6.2B.4.1.1 Configured Output		
Contiguous EN-DC 6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1 6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN- DC including FR2 (1 NR CC) 6.2B.4.1.1 Configured Output Power Level for Intra-Band	Same as clause 6.2.3 in TS 38.521-2 [9]	
Contiguous EN-DC  6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1  6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN- DC including FR2 (1 NR CC)  6.2B.4.1.1 Configured Output Power Level for Intra-Band Contiguous EN-DC	Same as clause 6.2.3 in TS 38.521-2 [9]  Same as 6.2.4 in TS 38.521-1 [8]	
Contiguous EN-DC  6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1  6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN- DC including FR2 (1 NR CC)  6.2B.4.1.1 Configured Output Power Level for Intra-Band Contiguous EN-DC  6.2B.4.1.2 Configured Output	Same as clause 6.2.3 in TS 38.521-2 [9]	
Contiguous EN-DC  6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1  6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN- DC including FR2 (1 NR CC)  6.2B.4.1.1 Configured Output Power Level for Intra-Band Contiguous EN-DC  6.2B.4.1.2 Configured Output Power for Intra-Band Non-	Same as clause 6.2.3 in TS 38.521-2 [9]  Same as 6.2.4 in TS 38.521-1 [8]	
Contiguous EN-DC  6.2B.3.3 UE Additional Maximum Output Power reduction for Inter-Band EN- DC within FR1  6.2B.3.4 UE Additional Maximum Output Power reduction for Inter-Band EN- DC including FR2 (1 NR CC)  6.2B.4.1.1 Configured Output Power Level for Intra-Band Contiguous EN-DC  6.2B.4.1.2 Configured Output	Same as clause 6.2.3 in TS 38.521-2 [9]  Same as 6.2.4 in TS 38.521-1 [8]	

6.2B.4.1.3 Configured Output Power for Inter-Band EN-DC within FR1 (1 E-UTRA CC, 1 NR CC)	Same as 6.2B.1.3	
6.2B.4.1.3_1 Configured Output Power for Inter-Band EN-DC within FR1 (2 E- UTRA CCs, 1 NR CC)	Same as 6.2B.1.3	
6.2B.4.1.4_1 Configured Output Power with Power Boost for Inter-Band EN-DC including FR2 (1 NR CC)	Same as clause 6.2.4_1 in TS 38.521-2 [9]	
6.3B.1.1 Minimum Output Power for intra-band contiguous EN-DC	Same as 6.3.1 in TS 38.521-1 [8]	
6.3B.1.2 Minimum output power for intra-band non-contiguous EN-DC	Same as 6.3.1 in TS 38.521-1 [8]	
6.3B.1.3 Minimum output power for inter-band EN-DC within FR1	Same as 6.3.1 in TS 38.521-1 [8]	
6.3B.1.4 Minimum Output Power for EN-DC Interband including FR2	Same as 6.3.1 in TS 38.521-2 [9]	
6.3B.1.4_1.1 Minimum output power for inter-band EN-DC including FR2 (3 CCs)	Same as 6.3A.1.1 in TS 38.521-2 [9]	
6.3B.1.4_1.2 Minimum output power for inter-band EN-DC including FR2 (4 CCs)	Same as 6.3A.1.2 in TS 38.521-2 [9]	
6.3B.1.4_1.3 Minimum output power for inter-band EN-DC including FR2 (5 CCs)	Same as 6.3A.1.3 in TS 38.521-2 [9]	
6.3B.2.1 Transmit OFF Power for intra-band contiguous EN-DC	Same as 6.3.2 in TS 38.521-1 [8]	
6.3B.2.2 Transmit OFF Power for intra-band non- contiguous EN-DC	Same as 6.3.2 in TS 38.521-1 [8]	
6.3B.2.3 Transmit OFF Power for inter-band EN-DC within FR1	Same as 6.3.2 in TS 38.521-1 [8]	
6.3B.2.4 Transmit OFF Power for inter-band EN-DC including FR2	Same as 6.3.2 in TS 38.521-2 [9]	
6.3B.3.1 Tx ON/OFF time mask for intra-band contiguous EN-DC	Same as 6.3.3.2 in TS 38.521-1 [8]	
6.3B.2.4_1.1 Transmit OFF Power for Inter-band EN-DC including FR2 (3 CCs)	Same as 6.3A.2.1 in TS 38.521-2 [9]	
6.3B.2.4_1.2 Transmit OFF Power for Inter-band EN-DC including FR2 (4 CCs)	Same as 6.3A.2.2 in TS 38.521-2 [9]	
6.3B.2.4_1.3 Transmit OFF Power for Inter-band EN-DC including FR2 (5 CCs)	Same as 6.3A.2.3 in TS 38.521-2 [9]	
6.3B.3.2 Tx ON/OFF time mask for intra-band non-contiguous EN-DC	Same as 6.3.3.2 in TS 38.521-1 [8]	
6.3B.3.3 Tx ON/OFF time mask for inter-band EN-DC within FR1	Same as 6.3.3.2 in TS 38.521-1 [8]	

6.3B.3.4 Transmit ON/OFF	Same as 6.3.3.2 in TS 38.521-2 [9]	
time mask for inter-band EN-		
DC including FR2		
6.3B.4.3 PRACH Time Mask	Same as 6.3.3.4 in TS 38.521-1 [8]	
for inter-band EN-DC within		
FR1		
6.3B.8.1.1 Absolute power	Same as 6.3.4.2 in TS 38.521-1 [8]	
tolerance for intra-band		
contiguous EN-DC		
6.3B.8.1.2 Absolute power	Comp. op 6.2.4.2 in TC 20 F24.4 [0]	
	Same as 6.3.4.2 in TS 38.521-1 [8]	
tolerance for intra-band non-		
contiguous EN-DC		
6.3B.8.1.3 Absolute power	Same as 6.3.4.2 in TS 38.521-1 [8]	
tolerance for inter-band EN-	[.]	
DC within FR1		
6.3B.8.1.4 Absolute power	Same as 6.3.4.2 in TS 38.521-2 [9]	
tolerance for inter-band EN-		
DC including FR2		
6.3B.8.2.1 Relative power	Same as 6.3.4.3 in TS 38.521-1 [8]	
tolerance for intra-band	Game as 6.6. 1.6 iii 16 66.621 1 [6]	
contiguous EN-DC		
6.3B.8.2.2 Relative power	Same as 6.3.4.3 in TS 38.521-1 [8]	
tolerance for intra-band non-		
contiguous EN-DC		
6.3B.8.2.3 Relative power	Same as 6.3.4.3 in TS 38.521-1 [8]	
	Same as 0.3.4.3 iii 13 30.321-1 [0]	
tolerance for inter-band EN-		
DC within FR1		
6.3B.8.2.4 Relative power	Same as 6.3.4.3 in TS 38.521-2 [9]	
tolerance for inter-band EN-		
DC including FR2		
	0 0 0 1 1 : T0 00 501 1 [0]	
6.3B.8.3.1 Aggregate power	Same as 6.3.4.4 in TS 38.521-1 [8]	
tolerance for intra-band		
contiguous EN-DC		
6.3B.8.3.2 Aggregate power	Same as 6.3.4.4 in TS 38.521-1 [8]	
tolerance for intra-band non-		
contiguous EN-DC	0 0000000000000000000000000000000000000	
6.3B.8.3.3 Aggregate power	Same as 6.3.4.4 in TS 38.521-1 [8]	
tolerance for inter-band EN-		
	. ,	
DC within FR1		
DC within FR1 6.3B.8.3.4 Aggregate power	Same as 6.3.4.4 in TS 38.521-2 [9]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band EN-		
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2	Same as 6.3.4.4 in TS 38.521-2 [9]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2 6.4B.1.1 Frequency Error for		
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2	Same as 6.3.4.4 in TS 38.521-2 [9]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for	Same as 6.3.4.4 in TS 38.521-2 [9]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC 6.4B.1.3 Frequency Error for	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC 6.4B.1.3 Frequency Error for inter-band EN-DC within FR1	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC 6.4B.1.3 Frequency Error for inter-band EN-DC within FR1 6.4B.1.4 Frequency Error for	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC 6.4B.1.3 Frequency Error for inter-band EN-DC within FR1 6.4B.1.4 Frequency Error for inter-band EN-DC including	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC 6.4B.1.3 Frequency Error for inter-band EN-DC within FR1 6.4B.1.4 Frequency Error for inter-band EN-DC including FR2	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC 6.4B.1.3 Frequency Error for inter-band EN-DC within FR1 6.4B.1.4 Frequency Error for inter-band EN-DC including FR2 6.4B.1.4_1.1 Frequency	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC 6.4B.1.3 Frequency Error for inter-band EN-DC within FR1 6.4B.1.4 Frequency Error for inter-band EN-DC including FR2	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for Inter-band EN-DC including FR2	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]	
DC within FR1 6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2 6.4B.1.1 Frequency Error for intra-band contiguous EN-DC 6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC 6.4B.1.3 Frequency Error for inter-band EN-DC within FR1 6.4B.1.4 Frequency Error for inter-band EN-DC including FR2 6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2 6.4B.1.4_1.1 Frequency Error for Inter-band EN-DC including FR2 (3 CCs)	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.2 Frequency  6.4B.1.4_1.2 Frequency	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.2 Frequency Error for including FR2 (3 CCs)  6.4B.1.4_1.2 Frequency Error for Inter-band EN-DC including FR2 (Text)	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.2 Frequency Error for including FR2 (3 CCs)  6.4B.1.4_1.2 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.2 Frequency Error for Including FR2 (3 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.2 Frequency Error for including FR2 (3 CCs)  6.4B.1.4_1.2 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.2 Frequency Error for Including FR2 (3 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (1 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (1 CCs)	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.2 Frequency Error for Including FR2 (3 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (5 CCs)	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]  Same as 6.4A.1.2 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2 (3 CCs)  6.4B.1.4_1.2 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (5 CCs)  6.4B.2.1.1 Error Vector	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band ENDC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.2 Frequency Error for Including FR2 (3 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (5 CCs)  6.4B.2.1.1 Error Vector Magnitude for intra-band	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]  Same as 6.4A.1.2 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2 (3 CCs)  6.4B.1.4_1.2 Frequency Error for Including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (5 CCs)  6.4B.2.1.1 Error Vector Magnitude for intra-band contiguous EN-DC	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]  Same as 6.4A.1.2 in TS 38.521-2 [9]  Same as 6.4A.1.3 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2 (3 CCs)  6.4B.1.4_1.2 Frequency Error for Including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (5 CCs)  6.4B.2.1.1 Error Vector Magnitude for intra-band contiguous EN-DC	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]  Same as 6.4A.1.2 in TS 38.521-2 [9]  Same as 6.4A.1.3 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2 (3 CCs)  6.4B.1.4_1.2 Frequency Error for Including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (5 CCs)  6.4B.2.1.1 Error Vector Magnitude for intra-band contiguous EN-DC  6.4B.2.1.2 Carrier Leakage	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]  Same as 6.4A.1.2 in TS 38.521-2 [9]	
DC within FR1  6.3B.8.3.4 Aggregate power tolerance for inter-band EN-DC including FR2  6.4B.1.1 Frequency Error for intra-band contiguous EN-DC  6.4B.1.2 Frequency Error for intra-band non-contiguous EN-DC  6.4B.1.3 Frequency Error for inter-band EN-DC within FR1  6.4B.1.4 Frequency Error for inter-band EN-DC including FR2  6.4B.1.4_1.1 Frequency Error for inter-band EN-DC including FR2 (3 CCs)  6.4B.1.4_1.2 Frequency Error for Including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (4 CCs)  6.4B.1.4_1.3 Frequency Error for Inter-band EN-DC including FR2 (5 CCs)  6.4B.2.1.1 Error Vector Magnitude for intra-band contiguous EN-DC	Same as 6.3.4.4 in TS 38.521-2 [9]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-1 [8]  Same as 6.4.1 in TS 38.521-2 [9]  Same as 6.4A.1.1 in TS 38.521-2 [9]  Same as 6.4A.1.2 in TS 38.521-2 [9]  Same as 6.4A.1.3 in TS 38.521-2 [9]	

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6.4B.2.1.3 In-band Emissions	Same as 6.4.2.3 in TS 38.521-1 [8]	
for intra-band contiguous EN-		
DC		
6.4B.2.1.4 EVM Equalizer	Same as 6.4.2.4 in TS 38.521-1 [8]	
Flatness for intra-band	[.,	
contiguous EN-DC		
	Comp. co C 4 0 4 in TC 20 504 4 [0]	
6.4B.2.2.1 Error Vector	Same as 6.4.2.1 in TS 38.521-1 [8]	
Magnitude for intra-band		
non-contiguous EN-DC		
6.4B.2.2.2 Carrier Leakage	Same as 6.4.2.2 in TS 38.521-1 [8]	
for intra-band non-contiguous		
EN-DC		
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
6.4B.2.2.3 In-band Emissions	Same as 6.4.2.3 in TS 38.521-1 [8]	
for intra-band non-contiguous		
EN-DC		
6.4B.2.2.4 EVM Equalizer	Same as 6.4.2.4 in TS 38.521-1 [8]	
Flatness for intra-band non-		
contiguous EN-DC		
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
6.4B.2.3.1 Error Vector	Same as 6.4.2.1 in TS 38.521-1 [8]	
Magnitude for inter-band EN-		
DC within FR1		
6.4B.2.3.2 Carrier Leakage	Same as 6.4.2.2 in TS 38.521-1 [8]	
for inter-band EN-DC within		
FR1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
6.4B.2.3.3 In-band Emissions	Same as 6.4.2.3 in TS 38.521-1 [8]	
for inter-band EN-DC within		
FR1		
6.4B.2.3.4 EVM Equalizer	Same as 6.4.2.4 in TS 38.521-1 [8]	
Flatness for inter-band EN-	Gaine as 6. 1.2. 1 11 10 00.021 1 [6]	
DC within FR1		
6.4B.2.4.1 Error Vector	Same as 6.4.2.1 in TS 38.521-2 [9]	
Magnitude for inter-band EN-		
DC including FR2		
6.4B.2.4.1a Error Vector	Same as clause 6.4.2.1_1 in TS 38.521-2 [9]	
	Same as clause 0.4.2.1_1 iii 13 30.321-2 [9]	
Magnitude with Power Boost		
for inter-band EN-DC		
in aludia a EDO (4 ND OO)		
including FR2 (1 NR CC)		
including FR2 (1 NR CC) 6.4B.2.4.2 Carrier Leakage	Same as 6.4.2.2 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage	Same as 6.4.2.2 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC	Same as 6.4.2.2 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2		
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC	Same as 6.4.2.2 in TS 38.521-2 [9]  Same as 6.4.2.3 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2		
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC		
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2	Same as 6.4.2.3 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer		
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-	Same as 6.4.2.3 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN- DC including FR2	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN- DC including FR2 6.4B.2.4.5 EVM spectral	Same as 6.4.2.3 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN- DC including FR2	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC)	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth for Inter-Band EN-DC within FR1	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth for Inter-Band EN-DC within FR1 6.5B.1.4 Occupied bandwidth	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth for Inter-Band EN-DC within FR1 6.5B.1.4 Occupied bandwidth for Inter-Band EN-DC within FR1	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth for Inter-Band EN-DC within FR1 6.5B.1.4 Occupied bandwidth for Inter-Band EN-DC within FR1	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth for Inter-Band EN-DC within FR1 6.5B.1.4 Occupied bandwidth for Inter-Band EN-DC within FR1 6.5B.1.4 Occupied bandwidth for Inter-Band EN-DC including FR2 6.5B.1.4_1.1 Occupied	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth for Inter-Band EN-DC within FR1 6.5B.1.4 Occupied bandwidth for Inter-Band EN-DC including FR2 6.5B.1.4_1.1 Occupied bandwidth for Inter-Band EN-DC including FR2	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]	
6.4B.2.4.2 Carrier Leakage for inter-band EN-DC including FR2 6.4B.2.4.3 In-band Emissions for inter-band EN-DC including FR2 6.4B.2.4.4 EVM Equalizer Flatness for inter-band EN-DC including FR2 6.4B.2.4.5 EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) 6.5B.1.1 Occupied bandwidth for Intra-Band Contiguous EN-DC 6.5B.1.2 Occupied bandwidth for Intra-Band Non-Contiguous EN-DC 6.5B.1.3 Occupied bandwidth for Inter-Band EN-DC within FR1 6.5B.1.4 Occupied bandwidth for Inter-Band EN-DC within FR1 6.5B.1.4 Occupied bandwidth for Inter-Band EN-DC including FR2 6.5B.1.4_1.1 Occupied	Same as 6.4.2.3 in TS 38.521-2 [9]  Same as 6.4.2.4 in TS 38.521-2 [9]  Same as 6.4.2.5 in TS 38.521-2 [9]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]  Same as 6.5.1 in TS 38.521-1 [8]	

6 FP 1 4 1 2 Occupied	TBD	
6.5B.1.4_1.2 Occupied bandwidth for Inter-band EN-	IBD	
DC including FR2 (4 CCs)		
	TBD	
6.5B.1.4_1.3 Occupied bandwidth for Inter-band EN-	IBD	
DC including FR2 (5 CCs)		
6.5B.1.4D Occupied	Comp on 6 FD 4 in TC 20 F24 2 [0]	
•	Same as 6.5D.1 in TS 38.521-2 [9]	
bandwidth for inter-band EN-		
DC including FR2 for UL		
MIMO	Comp. co. C. F. 2. 2 in TC. 20. F24. 4 [0]	
6.5B.2.1.1 Spectrum	Same as 6.5.2.2 in TS 38.521-1 [8]	
emissions mask for intra-		
band contiguous EN-DC	O 0.5 0.0 in TO 00 504 4 [0]	
6.5B.2.1.2 Additional	Same as 6.5.2.3 in TS 38.521-1 [8]	
spectrum emissions mask for		
intra-band contiguous EN-DC	O 0.5 0.4.4 i= TO 00.504.4 [0]	
6.5B.2.1.3 Adjacent channel	Same as 6.5.2.4.1 in TS 38.521-1 [8]	
leakage ratio for intra-band		
contiguous EN-DC	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
6.5B.2.2.1 Spectrum	Same as 6.5.2.2 in TS 38.521-1 [8]	
emissions mask for intra-		
band non-contiguous EN-DC	0 0 0 0 0 0 TO 00 TO 4 703	
6.5B.2.2.2 Additional	Same as 6.5.2.3 in TS 38.521-1 [8]	
Spectrum emissions mask for		
intra-band non-contiguous		
EN-DC		
6.5B.2.2.3 Adjacent channel	Same as 6.5.2.4.1 in TS 38.521-1 [8]	
leakage ratio for intra-band		
non-contiguous EN-DC		
6.5B.2.3.1 Spectrum	Same as 6.5.2.2 in TS 38.521-1 [8]	
emissions mask for Inter-		
band EN-DC within FR1		
6.5B.2.3.2 Additional	Same as 6.5.2.3 in TS 38.521-1 [8]	
Spectrum emissions mask for		
Inter-band EN-DC within FR1		
6.5B.2.3.3.1 NR - Adjacent	Same as 6.5.2.4.1 in TS 38.521-1 [8]	
channel leakage ratio for		
inter-band EN-DC within FR1		
(1 NR CC)		
6.5B.2.3.3.2 UTRA	Same as 6.5.2.4.2 in TS 38.521-1 [8]	
- Adjacent channel leakage		
ratio for inter-band EN-DC		
within FR1 (1 NR CC)		
6.5B.2.4.1 Spectrum	Same as 6.5.2.1 in TS 38.521-2 [9]	
emissions mask for Inter-		
band EN-DC including FR2		
6.5B.2.4.1a Spectrum	Same as clause 6.5.2.1.1_1 in TS 38.521-2	
emissions mask with Power	[9]	
Boost for Inter-band EN-DC		
including FR2 (1 NR CC)		
6.5B.2.4.1_1.1 Spectrum	Same as clause 6.5A.2.1.1 in TS 38.521-2 [9]	
emissions mask for Inter-		
band EN-DC including FR2		
(2 NR CCs)		
6.5B.2.4.1_1.2 Spectrum	Same as clause 6.5A.2.1.2 in TS 38.521-2 [9]	
emissions mask for Inter-		
band EN-DC including FR2		
(3 NR CCs)		
6.5B.2.4.1_1.3 Spectrum	Same as clause 6.5A.2.3 in TS 38.521-2 [9]	
emissions mask for Inter-		
band EN-DC including FR2		
(4 NR CCs)		
6.5B.2.4.3 Adjacent channel	Same as 6.5.2.3 in TS 38.521-2 [9]	
leakage ratio for Inter-band		
EN-DC including FR2		

6.5B.2.4.3_1.1 Adjacent	Same as clause 6.5A.2.2.1 in TS 38.521-	
channel leakage ratio for	2 [9]	
Inter-band EN-DC including	_ [o]	
FR2 (3 CCs)		
	0 1 054 0 0 0 : T0 00 504	
6.5B.2.4.3_1.2 Adjacent	Same as clause 6.5A.2.2.2 in TS 38.521-	
channel leakage ratio for	2 [9]	
Inter-band EN-DC including		
FR2 (4 CCs)		
6.5B.2.4.3_1.3 Adjacent	Same as clause 6.5A.2.2.3 in TS 38.521-	
channel leakage ratio for	2 [9]	
Inter-band EN-DC including		
FR2 (5 CCs)		
6.5B.2.4.3_1.4 Adjacent	Same as clause 6.5A.2.2.4 in TS 38.521-	
channel leakage ratio for	2 [9]	
Inter-band EN-DC including	- [°]	
FR2 (5 NR CCs)		
6.5B.2.4.3_1.5 Adjacent	Same as clause 6.5A.2.2.5 in TS 38.521-	
channel leakage ratio for	2 [9]	
Inter-band EN-DC including		
FR2 (6 NR CCs)		
6.5B.2.4.3_1.6 Adjacent	Same as clause 6.5A.2.2.6 in TS 38.521-	
channel leakage ratio for	2 [9]	
Inter-band EN-DC including		
FR2 (7 NR CCs)		
6.5B.2.4.3_1.7 Adjacent	Same as clause 6.5A.2.2.7 in TS 38.521-	
channel leakage ratio for	2 [9]	
Inter-band EN-DC including	_ [o]	
FR2 (8 NR CCs)		
6.5B.3.1.1 General spurious	Same as 6.5.3.1 in TS 38.521-1 [8]	
emissions for intra-band		
contiguous EN-DC		
6.5B.3.1.2 Spurious emission	Same as 6.5.3.2 in TS 38.521-1 [8]	
band UE co-existence for	- Camo do 0.0.0.2 m 10 00.021 1 [0]	
intra-band contiguous EN-DC	0.504: T0.005044[0]	
6.5B.3.2.1 General spurious	Same as 6.5.3.1 in TS 38.521-1 [8]	
emissions for Intra-band non-		
contiguous EN-DC		
6.5B.3.2.2 Spurious Emission	Same as 6.5.3.2 in TS 38.521-1 [8]	
band UE co-existence for		
intra-band non-contiguous		
EN-DC	0 0 0 0 1 1 70 00 70 1 1 10	
6.5B.3.3.1 General spurious	Same as 6.5.3.1 in TS 38.521-1 [8]	
emissions for Inter-band EN-		
DC within FR1		
6.5B.3.3.2 Spurious emission	Same as 6.5.3.2 in TS 38.521-1 [8]	
band UE co-existence for	556 46 6.6.6.2 11 10 66.621 1 [6]	
Inter-band within FR1	0 0 0 0 1 1 70 00 50 10 10 10 10 10 10 10 10 10 10 10 10 10	
6.5B.3.4.1 General Spurious	Same as 6.5.3.1 in TS 38.521-2 [9]	
Emissions for Inter-band		
including FR2 (1 NR CC)		
6.5B.3.4.1a General	Same as clause 6.5.3.1_1 in TS 38.521-2 [9]	
Spurious Emissions with	Came do olddoo 0.0.0.1_1   1   10 00.021-2 [0]	
Power Boost for Inter-band		
including FR2 (1 NR CC)		
6.5B.3.4.1_1.1 General	Same as clause 6.5A.3.1.1 in TS 38.521-2 [9]	
Spurious Emissions for Inter-		
band including FR2 (2 NR		
CCs)		
	Como ao alguno 6.54.2.4.2 in TC 20.524.2.51	
6.5B.3.4.1_1.2 General	Same as clause 6.5A.3.1.2 in TS 38.521-2 [9]	
Spurious Emissions for Inter-		
band including FR2 (3 NR		
CCs)		
6.5B.3.4.1_1.3 General	Same as clause 6.5A.3.1.3 in TS 38.521-2 [9]	
Spurious Emissions for Inter-	[0]	
band including FR2 (4 NR		
CCs)		

6.5B.3.4.1_1.4 General Spurious Emissions for Inter- band including FR2 (5 NR CCs)	Same as clause 6.5A.3.1.4 in TS 38.521-2 [9]	
6.5B.3.4.1_1.5 General Spurious Emissions for Inter- band including FR2 (6 NR CCs)	Same as clause 6.5A.3.1.5 in TS 38.521-2 [9]	
6.5B.3.4.1_1.6 General Spurious Emissions for Inter- band including FR2 (7 NR CCs)	Same as clause 6.5A.3.1.6 in TS 38.521-2 [9]	
6.5B.3.4.1_1.7 General Spurious Emissions for Inter- band including FR2 (8 NR CCs)	Same as clause 6.5A.3.1.7 in TS 38.521-2 [9]	
6.5B.3.4.2 Spurious emission band UE co-existence for Inter-band including FR2	Same as 6.5.3.2 in TS 38.521-2 [9]	
6.5B.3.4.2a Spurious emission band UE co- existence with Power Boost for Inter-band including FR2 (1 NR CC)	Same as clause 6.5.3.2_1 in TS 38.521-2 [9]	
6.5B.4.1 Additional Spurious Emissions for Intra-band contiguous EN-DC	Same as clause 6.5.3.3 in TS 38.521-1 [8]	
6.5B.4.2 Additional Spurious Emissions for Intra-band non- contiguous EN-DC	Same as clause 6.5.3.3 in TS 38.521-1 [8]	
6.5B.4.3 Additional Spurious Emissions for Inter-band EN- DC within FR1	Same as clause 6.5.3.3 in TS 38.521-1 [8]	
6.5B.4.4 Additional Spurious Emissions for Inter-band including FR2 (1 NR CC)	Same as clause 6.5.3.3 in TS 38.521-2 [9]	
6.5B.4.4a Additional Spurious Emissions with Power Boost for Inter-band including FR2 (1 NR CC)	Same as clause 6.5.3.3_1 in TS 38.521-2 [9]	
6.5B.5.3 Transmit intermodulation for Inter-band EN-DC within FR1	Same as 6.5.4 in TS 38.521-1 [8]	
6.6B.4 Beam Correspondence for inter- band EN-DC including FR2 (1 NR CC) - EIRP	Same as clause 6.6.1 in TS 38.521-2 [9]	
6.6B.5 Enhanced Beam Correspondence for inter- band EN-DC including FR2 (1 NR CC) - EIRP	Same as clause 6.6.2 in TS 38.521-2 [9]	

## F.3.3 Measurement of receiver

Table F.3.3-1: Derivation of Test Requirements (Receiver tests)

Sub clause	Test Tolerance (TT)	Formula for test requirement
7.3B.2.1 Reference	Same as 7.3.2 in TS 38.521-1 [8]	T Grimaia (Gr. 1881) (Grant Grind)
sensitivity for Intra-band	[-1	
Contiguous EN-DC (2 CCs)		
7.3B.2.2 Reference	Same as 7.3.2 in TS 38.521-1 [8]	
sensitivity for Intra-band non-		
contiguous EN-DC (2 CCs)	O 700: TO 00 504 4 501	
7.3B.2.3 Reference	Same as 7.3.2 in TS 38.521-1 [8]	
sensitivity for Inter-band EN- DC within FR1 (2 CCs)		
7.3B.2.3_1.1 Reference	Same as 7.3A.1 in TS 38.521-1 [8]	
sensitivity for Inter-band EN-		
DC within FR1 (3 CCs)		
7.3B.2.4 Reference	Same as 7.3.2 in TS 38.521-2 [9]	
sensitivity for Inter-band EN-		
DC including FR2		
7.3B.2.4_1.1 Reference	Same as 7.3A.2.1 in TS 38.521-2 [9]	
sensitivity for Inter-band EN-		
DC including FR2 (3 CCs)	Comp on 7.24 2.2 in TC 20 524 2 [0]	
7.3B.2.4_1.2 Reference sensitivity for Inter-band EN-	Same as 7.3A.2.2 in TS 38.521-2 [9]	
DC including FR2 (4 CCs)		
7.3B.2.4_1.3 Reference	Same as 7.3A.2.3 in TS 38.521-2 [9]	
sensitivity for Inter-band EN-	Sams do 7.5/ (2.6 iii 10 00.021 2 [0]	
DC including FR2 (5 CCs)		
7.3B.2.4_1.4 Reference	Same as 7.3A.2.4 in TS 38.521-2 [9]	
sensitivity for Inter-band EN-		
DC including FR2 (6 CCs)		
7.3B.4 EIS Spherical	Same as 7.3.4 in TS 38.521-2 [9]	
Coverage for Inter-band EN-		
DC including FR2	O 7.4 in TO 00 504 4 [0]	
7.4B.1 Maximum Input Level for Intra-Band Contiguous	Same as 7.4 in TS 38.521-1 [8]	
EN-DC (2 CCs)		
7.4B.2 Maximum Input Level	Same as 7.4 in TS 38.521-1 [8]	
for Intra-Band Non-		
Contiguous EN-DC (2 CCs)		
7.4B.3 Maximum Input Level	Same as 7.4 in TS 38.521-1 [8]	
for Inter-band EN-DC within		
FR1 (2 CCs)		
7.4B.3_1.1 Maximum Input	Same as 7.4A.1 in TS 38.521-1 [8]	
Level for Inter-band EN-DC		
within FR1 (3 CCs) 7.5B.1 Adjacent Channel	Same as 7.5 in TS 38.521-1 [8]	
Selectivity for intra-band	Same as 7.5 iii 13 30.321-1 [0]	
contiguous EN-DC (2 CCs)		
7.5B.2 Adjacent Channel	Same as 7.5 in TS 38.521-1 [8]	
Selectivity for intra-band non-		
contiguous EN-DC (2 CCs)		
7.5B.3 Adjacent Channel	Same as 7.5 in TS 38.521-1 [8]	
Selectivity for inter-band EN-		
DC within FR1 (2 CCs)	Comp. co. 7.5A.4 in TO.00.504.4 [0]	
7.5B.3_1.1 Adjacent Channel Selectivity for EN-DC within	Same as 7.5A.1 in TS 38.521-1 [8]	
FR1 (3 CCs)		
7.5B.3_1.2 Adjacent Channel	Same as 7.5 in TS 38.521-1 [8]	<del> </del>
Selectivity for EN-DC within		
FR1 (4 CCs)		
7.5B.4 Adjacent Channel	Same as clause 7.5 in TS 38.521-2 [9]	
Selectivity for inter-band EN-		
DC including FR2 (2CCs)		
7.6B.2.1 Inband blocking for	Same as 7.6.2 in TS 38.521-1 [8]	
intra-band contiguous EN-DC		
in FR1 (2 CCs)	Comp. op 7.6.2 in TC 20.504.4 [0]	
7.6B.2.2 Inband blocking for intra-band non-contiguous	Same as 7.6.2 in TS 38.521-1 [8]	
EN-DC in FR1 (2 CCs)		
2.7. 20 1 (2 003)		1

7.6B.2.3 Inband blocking for inter-band EN-DC within FR1 (2 CCs)	Same as 7.6.2 in TS 38.521-1 [8]	
7.6B.2.3_1.1 Inband blocking for EN-DC within FR1 (3 CCs)	<u>0 dB</u>	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.6B.2.3_1.2 Inband blocking for EN-DC within FR1 (4 CCs)	<u>0 dB</u>	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 (5 CCs)	<u>0 dB</u>	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.6B.2.4 Inband blocking for inter-band EN-DC including FR2 (2 CCs)	Same as 7.6.2 in TS 38.521-2 [9]	
7.6B.2.4_1.1 Inband blocking for inter-band EN-DC including FR2 (3 CCs)	<u>0 dB</u>	Wanted signal power + TT  T-put limit unchanged
7.6B.2.4_1.2 Inband blocking for inter-band EN-DC including FR2 (4 CCs)	<u>0 dB</u>	Wanted signal power + TT  T-put limit unchanged
7.6B.2.4_1.3 Inband blocking for inter-band EN-DC including FR2 (5 CCs)	<u>0 dB</u>	Wanted signal power + TT  T-put limit unchanged
7.6B.2.4_1.4 Inband blocking for inter-band EN-DC including FR2 (6 CCs)	<u>0 dB</u>	Wanted signal power + TT  T-put limit unchanged
7.6B.3.1 Out-of-band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)	Same as 7.6.3 in TS 38.521-1 [8]	1-put limit unchanged
7.6B.3.2 Out-of-band blocking for intra-band non- contiguous EN-DC in FR1 (2 CCs)	Same as 7.6.3 in TS 38.521-1 [8]	
7.6B.3.3 Out-of-band blocking for inter-band EN- DC within FR1 (2 CCs)	Same as 7.6.3 in TS 38.521-1 [8]	
7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (3 CCs)	0 dB	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.6B.3.3_1.2 Out-of-band blocking for EN-DC within FR1 (4 CCs)	0 dB	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.6B.4.1 Narrow band blocking for intra-band contiguous EN-DC in FR1 (2 CCs)	Same as 7.6.4 in TS 38.521-1 [8]	
7.6B.4.2 Narrow band blocking for intra-band non- contiguous EN-DC in FR1 (2 CCs)	Same as 7.6.4 in TS 38.521-1 [8]	
7.6B.4.3 Narrow band blocking for inter-band EN- DC within FR1 (2 CCs)	Same as 7.6.4 in TS 38.521-1 [8]	
7.6B.4.3_1.1 Narrow band blocking for EN-DC within FR1 (3 CCs)	<u>0 dB</u>	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.6B.4.3_1.2 Narrow band blocking for EN-DC within FR1 (4 CCs)	<u>0 dB</u>	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.6B.4.3_1.3 Narrow band blocking for EN-DC within FR1 (5 CCs)	<u>0 dB</u>	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.7B.1 Spurious Response for intra-band contiguous EN- DC in FR1 (2 CCs)	Same as 7.7 in TS 38.521-1 [8]	

7 7D 2 Courious Despess	Comp on 7.7 in TC 20 F24 4 [0]	
7.7B.2 Spurious Response for intra-band non-contiguous EN-DC in FR1 (2 CCs)	Same as 7.7 in TS 38.521-1 [8]	
7.7B.3 Spurious Response for inter-band EN-DC within FR1 (2 CCs)	Same as 7.7 in TS 38.521-1 [8]	
7.6B.3.3_1.1 Out-of-band blocking for EN-DC within FR1 (3 CCs)	0 dB	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.6B.3.3_1.2 Out-of-band blocking for EN-DC within FR1 (4 CCs)	0 dB	Wanted signal power + TT Interferer signal power unchanged T-put limit unchanged
7.8B.2.1 Wideband Intermodulation for intra-band contiguous EN-DC in FR1	Same as 7.8.2 in TS 38.521-1 [8]	
7.8B.2.2 Wideband Intermodulation for intra-band non-contiguous EN-DC in FR1	Same as 7.8.2 in TS 38.521-1 [8]	
7.8B.2.3 Wideband Intermodulation for inter-band EN-DC in FR1	Same as 7.8.2 in TS 38.521-1 [8]	
7.8B.2.3_1.1 Wideband Intermodulation for EN-DC within FR1 (3 CCs)	Same as 7.8A.2.1 in TS 38.521-1 [8]	
7.8B.2.3_1.2 Wideband Intermodulation for EN-DC within FR1 (4 CCs)	Same as 7.8A.2 in TS 38.521-1 [8]	
7.8B.2.3_1.3 Wideband Intermodulation for EN-DC within FR1 (5 CCs)	Same as 7.8A.2 in TS 38.521-1 [8]	
7.8B.2.3_1.4 Wideband Intermodulation for EN-DC within FR1 (6 CCs)	Same as 7.8A.2 in TS 38.521-1 [8]	
7.9B.1 Spurious Emissions for intra-band contiguous ENDC within FR1 (2 CCs)	Same as 7.9 in TS 38.521-1 [8]	
7.9B.2 Spurious Emissions for intra-band non-contiguous EN-DC within FR1 (2 CCs)	Same as 7.9 in TS 38.521-1 [8]	
7.9B.3 Spurious Emissions for inter-band EN-DC within FR1 (2 CCs)	Same as 7.9 in TS 38.521-1 [8]	
7.9B.3_1.1 Spurious Emissions for EN-DC within FR1 (3 CCs)	Same as 7.9A.1 in TS 38.521-1 [8]	
7.9B.4 Spurious Emissions for inter-band EN-DC including FR2 (2 CCs)	Same as 7.9 in TS 38.521-2 [9]	

## F.4 Uplink power window

## F.4.1 Introduction

A number of Tx and Rx Test cases set the UE uplink power to be within a defined window to ensure the test is carried out in the intended conditions. This clause gives the method for calculating the uplink power window used in Tx test cases and Rx Test cases.

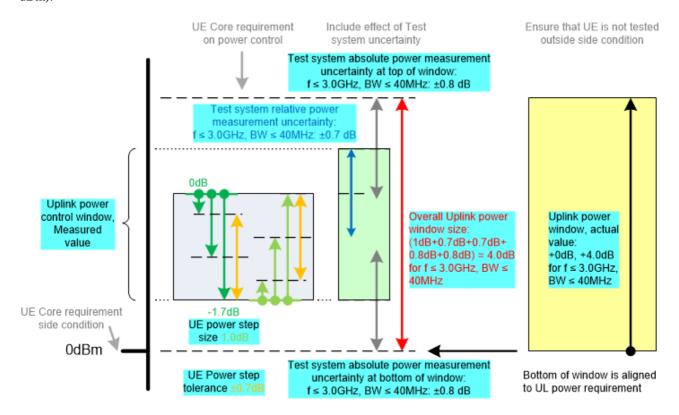
### F.4.2 Setting the power window above a requirement

#### F.4.2.1 NR FR1

Information from the core requirements in TS 38.101-1 [2], TS 38.213 [19] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.
- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window to ensure UE is not tested outside Core requirements.

This process is shown in the diagram below, using values for  $f \le 3GHz$  and  $BW \le 40MHz$  and taking an example where the target value is 0dBm (lower end of a UE Core requirement side condition range of  $0dBm \le 0$ utput power  $\le 10dBm$ ):



## UE Uplink power

Figure F.4.2.1-1: Example NR FR1 uplink power setting to be above a requirement

The smallest UE Power step size is defined in TS 38.213 [9] Table 7.1.1-1, for absolute  $\delta_{\text{PUSCH}_{b},f,c}$ .

The UE Power step size tolerance is defined in TS 38.101-1 [2] Table 6.3.4.3-1, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, DwPTS fields or Guard Periods, and for a power step  $\Delta P \le 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

To ensure that the actual UE uplink power is within the Uplink power window, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.2.1-1.

#### F.4.2.2 NR FR2

Information from the core requirements in TS 38.101-2 [3], TS 38.213 [19] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.
- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window to ensure UE is not tested outside Core requirements.

This process is shown in the diagram below, using values for FR2a and  $P_{UMAX} \ge P > P_{int}$  and taking an example where the target value is  $P_{int}$ :

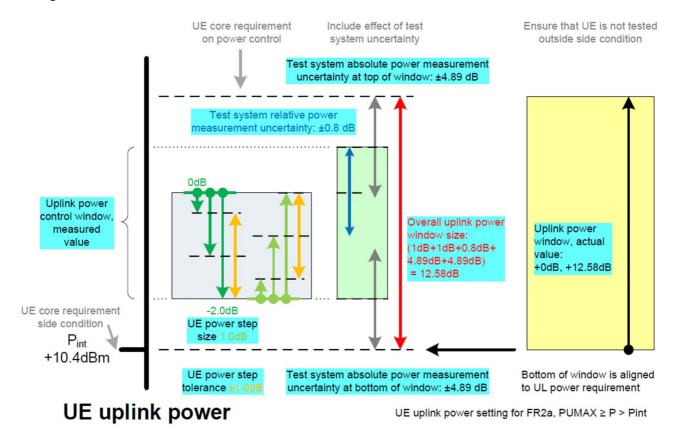


Figure F.4.2.2-1: Example NR FR2 uplink power setting to be above a requirement

The smallest UE Power step size is defined in TS 38.213 [9] Table 7.1.1-1, for absolute  $\delta_{\text{PUSCH}_{t},f,c}$ .

The UE Power step size tolerance is defined in TS 38.101-2 [3] Table 6.3.4.3-1 and Table 6.3.4.3-2, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, Guard Periods, and for a power step  $\Delta P = 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

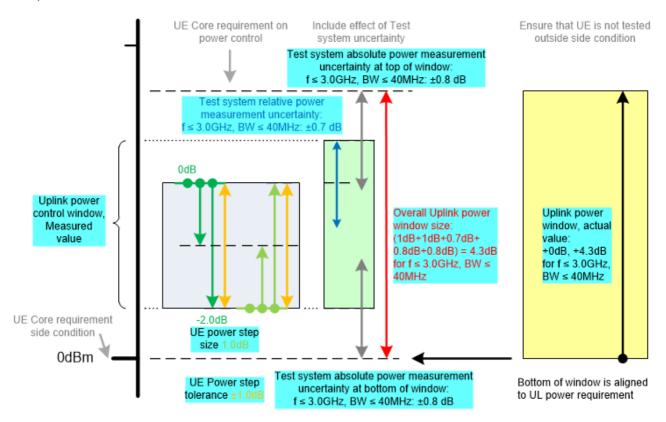
To ensure that the actual UE uplink power is within the Uplink power window, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.2.2-1.

#### F.4.2.3 E-UTRA

Information from the core requirements in TS 36.101 [5], TS 36.213 [20] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.
- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window to ensure UE is not tested outside Core requirements.

This process is shown in the diagram below, using values for  $f \le 3GHz$  and  $BW \le 40MHz$  and taking an example where the target value is 0dBm (lower end of a UE Core requirement side condition range of  $0dBm \le 0$ utput power  $\le 10dBm$ ):



## UE Uplink power

Figure F.4.2.3-1: Example E-UTRA uplink power setting to be above a requirement

The smallest UE Power step size is defined in TS 36.213 [20] Table 5.1.1.1-2, for absolute  $\delta_{\text{PUSCI}}$ 

The UE Power step size tolerance is defined in TS 36.101 [5] Table 6.3.5.2.1-1, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, DwPTS fields or Guard Periods, and for a power step  $\Delta P \le 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

To ensure that the actual UE uplink power is within the Uplink power window, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.2.3-1.

### F.4.3 Setting the power window below a requirement

#### F.4.3.1 NR FR1

Information from the core requirements in TS 38.101-1 [2], TS 38.213 [19] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.
- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window to ensure UE is not tested outside Core requirements.

This process is shown in the diagram below, using values for  $f \le 3GHz$  and  $BW \le 40MHz$  and taking an example where the target value is 4dB below PCMAX\_L (UE Core requirement side condition):

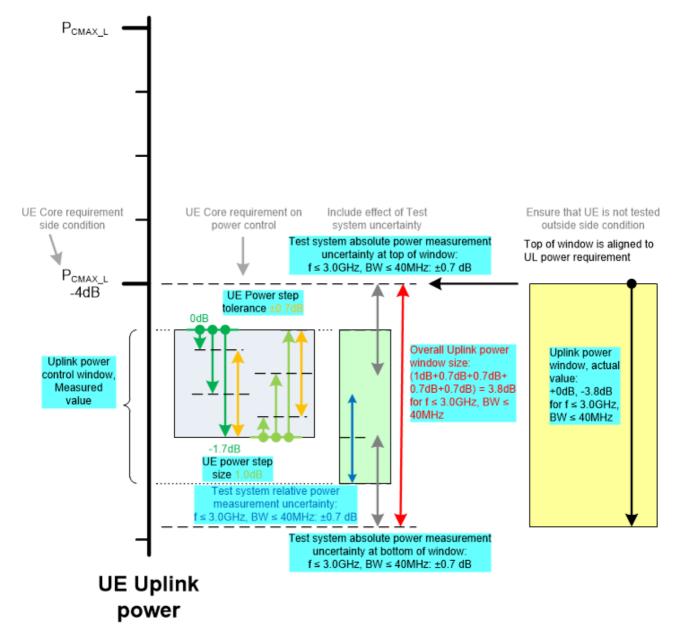


Figure F.4.3.1-1: Example NR FR1 uplink power setting to be below a requirement

The smallest UE Power step size is defined in TS 38.213 [19] Table 7.1.1-1, for absolute  $\delta_{\text{PUSCH}_{b},f,c}$ .

The UE Power step size tolerance is defined in TS 38.101-1 [5] Table 6.3.4.3-1, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, DwPTS fields or Guard Periods, and for a power step  $\Delta P \le 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

To ensure that the actual UE uplink power is within the Uplink power window, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.3.1-1.

#### F.4.3.2 NR FR2

Information from the core requirements in TS 38.101-2 [3], TS 38.213 [19] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.
- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window to ensure UE is not tested outside Core requirements.

This process is shown in the diagram below, using values for FR2a and  $P_{UMAX} \ge P > P_{int}$  and taking an example where the target value is  $P_{UMAX}$ :

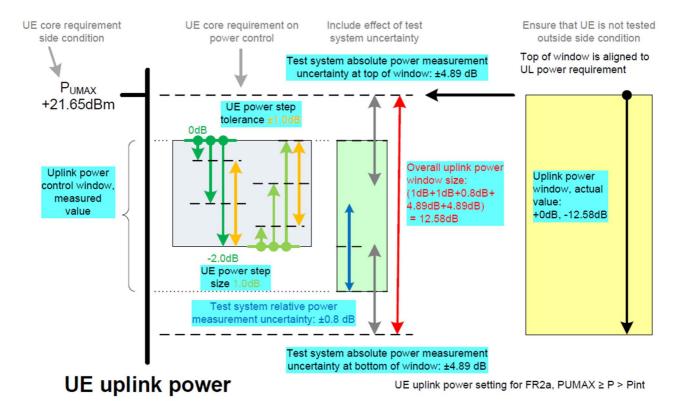


Figure F.4.3.2-1: Example NR FR2 uplink power setting to be below a requirement

The smallest UE Power step size is defined in TS 38.213 [19] Table 7.1.1-1, for absolute  $\delta_{\text{PUSCH}_b,f,c}$ .

The UE Power step size tolerance is defined in TS 38.101-1 [3] Table 6.3.4.3-1 and Table 6.3.4.3-2, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, Guard Periods, and for a power step  $\Delta P = 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

To ensure that the actual UE uplink power is within the Uplink power window, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.3.2-1.

#### F.4.3.3 E-UTRA

Information from the core requirements in TS 36.101 [5], TS 36.213 [20] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.
- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window to ensure UE is not tested outside Core requirements.

This process is shown in the diagram below, using values for  $f \le 3GHz$  and  $BW \le 40MHz$  and taking an example where the target value is 4dB below PCMAX\_L (UE Core requirement side condition):

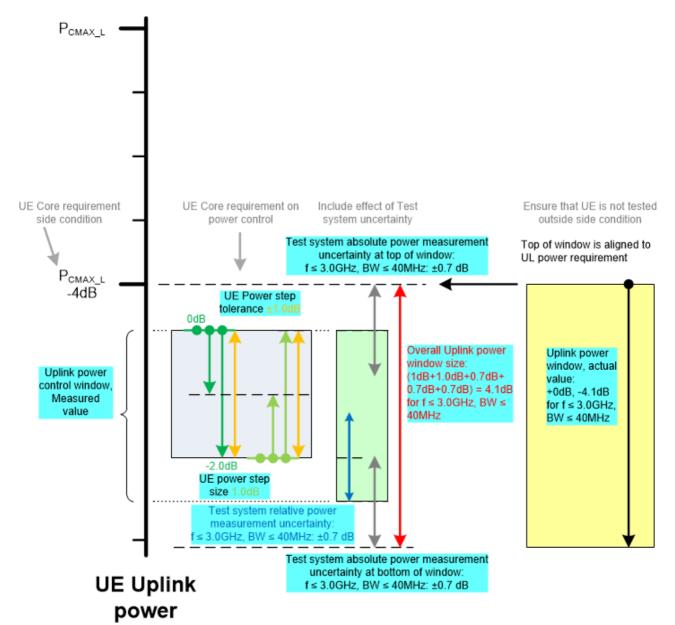


Figure F.4.3.3-1: Example E-UTRA uplink power setting to be below a requirement

The smallest UE Power step size is defined in TS 36.213 [20] Table 5.1.1.1-2, for absolute  $\delta_{PUSCF}$ 

The UE Power step size tolerance is defined in TS 36.101 [5] Table 6.3.5.2.1-1, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, DwPTS fields or Guard Periods, and for a power step  $\Delta P \le 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

To ensure that the actual UE uplink power is within the Uplink power window, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.3.3-1.

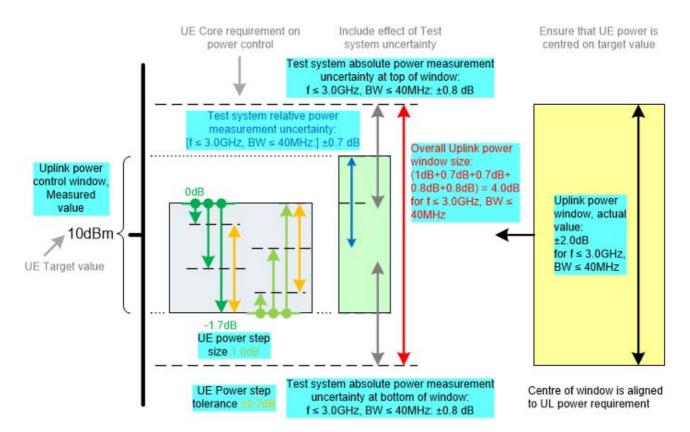
### F.4.4 Setting the power window centred on a target value

#### F.4.4.1 NR FR1

Information from the core requirements in TS 38.101-1 [2], TS 38.213 [19] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.
- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window centred on the target value.

This process is shown in the diagram below, using values for  $f \le 3GHz$  and  $BW \le 40MHz$  and taking an example where the target value is +10dBm:



## UE Uplink power

Figure F.4.4.1-1: Example NR FR1 uplink power setting centred on a target value

The smallest UE Power step size is defined in TS 38.213 [9] Table 7.1.1-1, for absolute  $\delta_{\text{PUSCH},f,c}$ .

The UE Power step size tolerance is defined in TS 38.101-1 [2] Table 6.3.4.3-1, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, DwPTS fields or Guard Periods, and for a power step  $\Delta P \le 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

To ensure that the actual UE uplink power is centred on the target value, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.4.1-1.

#### F.4.4.2 NR FR2

Information from the core requirements in TS 38.101-2 [3], TS 38.213 [19] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.
- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window centred on the target value.

This process is shown in the diagram below, using values for FR2a and  $P_{UMAX} \ge P > P_{int}$  and taking an example where the target value is +15dBm:

UE uplink power setting for FR2a, PUMAX ≥ P > Pint

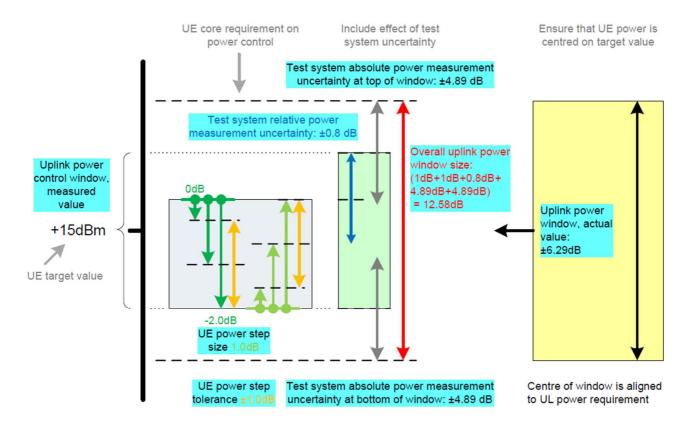


Figure F.4.4.2-1: Example NR FR2 uplink power setting centred on a target value

The smallest UE Power step size is defined in TS 38.213 [9] Table 7.1.1-1, for absolute  $\delta_{\text{PUSCH},f,c}$  .

The UE Power step size tolerance is defined in TS 38.101-2 [3] Table 6.3.4.3-1 and Table 6.3.4.3-2, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, Guard Periods, and for a power step  $\Delta P = 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

To ensure that the actual UE uplink power is centred on the target value, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.4.2-1.

### F.4.4.3 E-UTRA

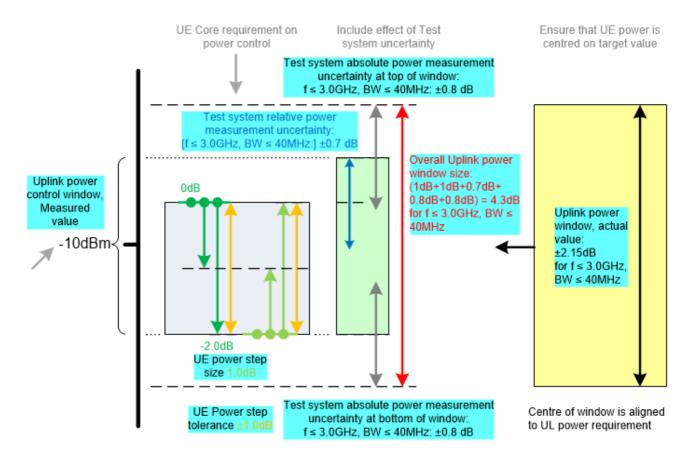
Information from the core requirements in TS 36.101 [5], TS 36.213 [20] and the uncertainties in Annex F applicable to the Test case are used to derive the uplink power window. There are 4 stages:

- Find the uplink power target value.

**UE** uplink power

- Determine how closely the uplink power can be set to the target value.
- Include the effect of test system uncertainty.
- Position the Uplink power window centred on the target value.

This process is shown in the diagram below, using values for  $f \le 3GHz$  and  $BW \le 40MHz$  and taking an example where the target value is -10dBm:



## UE Uplink power

Figure F.4.4.3-1: Example E-UTRA uplink power setting centred on a target value

The smallest UE Power step size is defined in TS 36.213 [20] Table 5.1.1.1-2, for absolute  $\delta_{\text{PUSCH}}$ .

The UE Power step size tolerance is defined in TS 36.101 [5] Table 6.3.5.2.1-1, for PUSCH to PUSCH transitions with the allocated resource blocks fixed in frequency and no transmission gaps other than those generated by downlink subframes, DwPTS fields or Guard Periods, and for a power step  $\Delta P \le 1$  dB.

The Test system uncertainties are defined in Annex F of the present document.

To ensure that the actual UE uplink power is centred on the target value, UE uplink power measured by the test system should remain within the smaller Uplink power control window shown in Figure F.4.4.3-1.

# Annex G (normative): Uplink Physical Channels

Please refer to Annex G in TS 38.521-1 [8] and TS 38.521-2 [9] for appropriate details as needed for test cases in this test specification. EN-DC exceptions will be added,

# Annex H (normative): Statistical Testing

#### Editor's Note:

- Further investigate the technical details behind this statistical method to ensure that this is applicable for FR2 radiated test cases.

### H.1 General

This annex specifies mapping throughput to error ratio, pass fail limits and pass fail decision rules that are needed for measuring average throughput for a duration sufficient to achieve statistical significance for testing receiver characteristics.

### H.2 Statistical testing of receiver characteristics

#### H.2.1 General

The test of receiver characteristics is twofold.

- 1. A signal or a combination of signals is offered to the RX port(s) of the receiver.
- 2. The ability of the receiver to demodulate /decode this signal is verified by measuring the throughput.

In (2) is the statistical aspect of the test and is treated here.

The minimum requirement for all receiver tests is >95% of the maximum throughput.

All receiver tests are performed in static propagation conditions. No fading conditions are applied.

### H.2.2 Mapping throughput to error ratio

- a) The measured information bit throughput R is defined as the sum (in kilobits) of the information bit payloads successfully received during the test interval, divided by the duration of the test interval (in seconds).
- b) In measurement practice the UE indicates successfully received information bit payload by signalling an ACK to the SS.
  - If payload is received, but damaged and cannot be decoded, the UE signals a NACK.
- c) Only the ACK and NACK signals, not the data bits received, are accessible to the SS. The number of bits is known in the SS from knowledge of what payload was sent.
- d) For the reference measurement channel, applied for testing, the number of bits is different in different slots, however in a radio frame it is fixed during one test.
- e) The time in the measurement interval is composed of successfully received slots (ACK), unsuccessfully received slots (NACK) and no reception at all (DTX-slots).
- f) DTX-slots may occur regularly according the applicable reference measurement channel (regDTX). In real live networks this is the time when other UEs are served. In TDD these are the UL and special slots. regDTX vary from test to test but are fixed within the test.
- g) Additional DTX-slots occur statistically when the UE is not responding ACK or NACK where it should.
  - This may happen when the UE was not expecting data or decided that the data were not intended for it.

The pass / fail decision is done by observing the:

number of NACKs

- number of ACKs and
- number of statDTXs (regDTX is implicitly known to the SS)

The ratio (NACK + statDTX)/(NACK+ statDTX + ACK) is the Error Ratio (ER). Taking into account the time consumed by the ACK, NACK, and DTX-TTIs (regular and statistical), ER can be mapped unambiguously to throughput for any single reference measurement channel test.

### H.2.3 Design of the test

The test is defined by the following design principles (see clause H.x, Theory....):

- 1. The early decision concept is applied.
- 2. A second limit is introduced: Bad DUT factor M>1
- 3. To decide the test pass:
  - Supplier risk is applied based on the Bad DUT quality
  - To decide the test fail
  - Customer Risk is applied based on the specified DUT quality

The test is defined by the following parameters:

- 1. Limit ER = 0.05 (Throughput limit = 95%)
- 2. Bad DUT factor M=1.5 (selectivity)
- 3. Confidence level CL = 95% (for specified DUT and Bad DUT-quality)

## H.2.4 Numerical definition of the pass fail limits

Table H.2.4-1: pass fail limits

ne	ns <sub>p</sub>	ns <sub>f</sub>	ne	nsp	ns <sub>f</sub>	ne	nsp	ns <sub>f</sub>	ne	nsp	ns <sub>f</sub>
0	67	NA	39	763	500	78	1366	1148	117	1951	1828
1	95	NA	40	778	516	79	1381	1166	118	1965	1845
2	119	NA	41	794	532	80	1396	1183	119	1980	1863
3	141	NA	42	810	548	81	1412	1200	120	1995	1881
4	162	NA	43	826	564	82	1427	1217	121	2010	1899
5	183	NA	44	842	580	83	1442	1234	122	2025	1916
6	202	NA	45	858	596	84	1457	1252	123	2039	1934
7	222	NA	46	873	612	85	1472	1269	124	2054	1952
8	241	NA	47	889	629	86	1487	1286	125	2069	1969
9	259	NA	48	905	645	87	1502	1303	126	2084	1987
10	278	76	49	920	661	88	1517	1321	127	2099	2005
11	296	88	50	936	678	89	1532	1338	128	2113	2023
12	314	100	51	952	694	90	1547	1355	129	2128	2040
13	332	113	52	967	711	91	1562	1373	130	2143	2058
14	349	126	53	983	727	92	1577	1390	131	2158	2076
15	367	140	54	998	744	93	1592	1407	132	2172	2094
16	384	153	55	1014	760	94	1607	1425	133	2187	2111
17	401	167	56	1029	777	95	1623	1442	134	2202	2129
18	418	181	57	1045	793	96	1637	1459	135	2217	2147
19	435	195	58	1060	810	97	1652	1477	136	2231	2165
20	452	209	59	1076	827	98	1667	1494	137	2246	2183
21	469	224	60	1091	844	99	1682	1512	138	2261	2201
22	486	238	61	1106	860	100	1697	1529	139	2275	2218
23	503	253	62	1122	877	101	1712	1547	140	2290	2236
24	519	268	63	1137	894	102	1727	1564	141	2305	2254
25	536	283	64	1153	911	103	1742	1582	142	2320	2272
26	552	298	65	1168	928	104	1757	1599	143	2334	2290
27	569	313	66	1183	944	105	1772	1617	144	2349	2308
28	585	328	67	1199	961	106	1787	1634	145	2364	2326
29	602	343	68	1214	978	107	1802	1652	146	2378	2344
30	618	359	69	1229	995	108	1817	1669	147	2393	2361
31	634	374	70	1244	1012	109	1832	1687	148	2408	2379
32	650	389	71	1260	1029	110	1847	1704	149	2422	2397
33	667	405	72	1275	1046	111	1861	1722	150	2437	2415
34	683	421	73	1290	1063	112	1876	1740	151	2452	2433
35	699	436	74	1305	1080	113	1891	1757	152	2466	2451
36	715	452	75	1321	1097	114	1906	1775	153*)	NA	2469
37	731	468	76	1336	1114	115	1921	1793			
38	747	484	77	1351	1131	116	1936	1810	*) no	te 2 in F	1.2.5

NOTE 1: The first column is the number of errors (ne = number of NACK + statDTX)

NOTE 2: The second column is the number of samples for the pass limit ( $ns_p$ , ns=Number of Samples= number of NACK + statDTX + ACK)

NOTE 3: The third column is the number of samples for the fail limit (ns<sub>f</sub>)

#### H.2.5 Pass fail decision rules

The pass fail decision rules apply for a single test, comprising one component in the test vector. The over all Pass /Fail conditions are defined in clause H.2.6and H.2A.6

Having observed 0 errors, pass the test at 67+ samples, otherwise continue

Having observed 1 error, pass the test at 95+ otherwise continue

Having observed 2 errors, pass the test at 119+ samples, fail the test at 2- samples, otherwise continue

Etc. etc.

Having observed 151 errors, pass the test at 2452+ samples, fail the test at 2433- samples, otherwise continue

Having observed 152 errors, pass the test at 2466+ samples, fail the test at 2451- samples.

Where x+ means: x or more, x- means x or less

NOTE 1: an ideal DUT passes after 67 samples. The maximum test time is 2466 samples.

NOTE 2: It is allowed to deviate from the early decision concept by postponing the decision (pass/fail or continue). Postponing the decision to or beyond the end of Table H.2.4-1 requires a pass fail decision against the test limit: pass the DUT for ER<0.0618, otherwise fail.

# Annex I (normative): Void

## Annex J (normative): Test applicability per permitted test method

Please refer to Annex J in TS 38.521-1 [8] and 38.521-2 [9] for appropriate details as needed for test cases in this test specification. Exceptions for EN-DC may be added as needed.

# Annex K (normative): EIRP, TRP, and EIS measurement procedures

Please refer to Annex K in 38.521-2 [9] for appropriate details as needed for test cases in this test specification. Exceptions for EN-DC may be added as needed.

# Annex L (normative): Void

# Annex M (normative): Dual uplink interferer

UE is mandated to support operation in dual and triple uplink mode for EN-DC configuration in NR FR1 listed in Table 5.5B.2-1, Table 5.5B.3-1, and Table 5.5B.4.1-1 and indicated by column single uplink allowed, Table 7.3B.2.0.3.5.1-1, Table 7.3B.2.0.3.5.2-0, Table 7.3B.2.0.3.5.2-1 or NE-DC configuration in NR FR1 listed in Table 5.5B.4a.1-1 and indicated by column single uplink allowed if the intermodulation products caused by the dual uplink operation do not interfere with its own primary downlink transmission channel bandwidth. For intermodulation products falling into LTE secondary downlink channel bandwidth, UE single UL capability is not considered.

Formula for determining if the EN-DC in NR FR1 configuration with dual uplink operation interferes with its own downlink reception.

Interference bandwidth: IBW = |a| \* CBW1 + |b| \* CBW2

- |a| + |b| = 2 (or 3)
- CBW1 and CBW2 are the transmission bandwidth configurations of the UL channels

Center frequency of IBW: fIBW = |a \* f1 + b \* f2|

- f1 and f2 are center frequency of the transmission bandwidth configurations of each UL channel

The range of IMD 2 (or 3): [fIBW – IBW/2, fIBW + IBW/2]

- NOTE 1: UE shall be able to apply operations which are configured by RRC reconfiguration and corresponding HARQ timing on the transmission bandwidth.
- NOTE 2: For identified difficult band combination, during two adjacent RRC reconfiguration, the changing of transmission bandwidth should not introduce IM2 and IM3, which will result in UE changing from 2Tx to 1Tx. Otherwise, UE behavior is not specified.

For DC\_3A\_n3A intra-band non-contiguous EN-DC combination, only single switched UL is supported in Rel-15.

For DC\_2A\_n2A, DC\_66A\_n66A intra-band non-contiguous EN-DC combination, only single switched UL is supported.

## Annex N (normative): Modified MPR behaviour

Editor's note: The *modifiedMPRbehavior* is given in the Annex H.1 of TS 38.101-3.

## N.1 Indication of modified MPR behaviour

This annex contains the definitions of the bits in the field *modifiedMPRbehavior* indicated in the IE RF-Parameters [13] by a UE supporting an MPR or A-MPR modified in a later release of this specification. *modifiedMPRbehavior* is indicated in TS 36.211 [13] by an 8-bit bitmap per NR band.

Table N.1-1: Definitions of the bits in the field modifiedMPRbehavior

NR Band	Index of field	Definition	Notes
	(bit number)	(description of the supported functionality if indicator	
		set to one)	
n41	0 (leftmost bit)	- EN-DC contiguous intraband MPR as defined in	- This bit may be set to 1 by
		clause 6.2B.2.1 of 38.101-3 v15.5.0	a UE supporting
			DC_(n)41AA UÉ EN-DC
	1	- EN-DC non-contiguous intraband MPR as defined	- This bit may be set to 1 by
		in clause 6.2B.2.2 of 38.101-3 v15.5.0	a UE supporting
			DC_41A_n41A EN-DC
	2	- EN-DC contiguous and non-contiguous intraband	-This bit may be set to 1 by
		MPR and A-MPR as defined in 38.101-3 v16.4.0. If	a UE supporting
		this bit is not set the UE uses Rel-15 MPR or A-	DC_(n)41AA or
		MPR for EN-DC contiguous and non-contiguous	DC_41A_n41A EN-DC
		intraband MPR and A-MPR	
n71	0 (leftmost bit)	- EN-DC contiguous intraband MPR as defined in	- This bit may be set to 1 by
		clause 6.2B.2.1 of 38.101-3 v15.5.0	a UE supporting
			DC_(n)71AA UE EN-DC

# Annex O (informative): Change history

						Change history	
Date	Meeting	TDoc	CR	R	Cat	Subject/Comment	New version
2017-08	RAN5#76	R5-174710	-	-	-	Draft skeleton	0.0.1
2018-01	RAN5#1-	R5-180086	-	-	-	TP to add clause 6.2B.3.3 UE A-MPR intra-band EN-DC to 38.521-3	
	5G-NR						
	Adhoc						
2018-01	RAN5#1- 5G-NR	R5-180087	-	-	-	TP to add clause 6.5B.2.1.2 Additional Spectrum emissions mask	0.1.0
	Adhoc					(contiguous sub-blocks) for intra-band EN-DC to 38.521-3	
2018-02		R5-181509	-	-	_	Updated 38.521-3 for new Annex A Dual uplink interferer information	020
2018-02		R5-181690	-	-	-	Updated 38.521-3 for channel bandwidth information	0.2.0
2018-03	RAN5#2-	R5-181760	-	-	-	Draft TS 38.521-3 0.3.0	0.3.0
	5G-NR Adhoc						
2018-04	RAN5#2-	R5-182035	-	-	-	5G-NR Text Proposal to add spurious emissions test case to 38.521-	0.4.0
	5G-NR					3	
2018-04	Adhoc RAN5#2-	R5-182016				TP for new test case: 6.5B.2.1.3, Adjacent channel leakage ratio for	0.4.0
2016-04	5G-NR	K5-162016	-	-	-	intra-band contiguous EN-DC	0.4.0
	Adhoc					Initial baria configuous EN 50	
2018-04	RAN5#2-	R5-182017	-	-	-	TP to update clause 6.2B.3.1 UE A-MPR intra-band EN-DC to	0.4.0
	5G-NR					38.521-3	
	Adhoc						
2018-04	RAN5#2-	R5-182018	-	-	-	TP to update clause 6.5B.2.1.2 Additional spectrum emission mask	0.4.0
	5G-NR Adhoc					to 38.521-3	
2018-04	RAN5#2-	R5-181807	_	1_	_	Update to Operating bands of 38.521-3	0.4.0
2010-04	5G-NR	101007			_	opulate to operating bands of 30.32 1-3	0.4.0
	Adhoc						
2018-04	RAN5#2-	R5-181808	-	-	-	Update to clause 3 and clause 4 of 38.521-3	0.4.0
	5G-NR						
0010.01	Adhoc	DE 404000					0.4.0
2018-04	RAN5#2- 5G-NR	R5-181828	-	-	-	Updated 38.521-3 for channel bandwidth information with new structure	0.4.0
	Adhoc					Structure	
2018-07		R5-183961	-	-	-	5G_FR1_EN_DC_RF_sensitivity_for_DC	0.5.0
2018-07		R5-183962	-	-	-	Introduction of TC 6.2B.1.3 for EN-DC	0.5.0
2018-07		R5-183949	-	-	-	Statistical Testing Annex for 38.521-3	0.5.0
2018-07	RAN5#79	R5-182995	-	-	-	Corrections annex for EIRP and TRP metric definition in TS 38.521-	0.5.0
0040.07	DANE#70	DE 400707		-		3	0.5.0
2018-07	RAN5#79	R5-183707	-	-	-	TP for updating test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC	0.5.0
2018-07	RAN5#79	R5-183708	_	-	-	Updated clause 5.5B Configuration for DC to 38.521-3	0.5.0
2018-07		R5-183709	-	-	-	TP to add Occupied BW EN-DC test case	0.5.0
2018-07		R5-183710	-	-	-	TP to add SEM EN-DC test case	0.5.0
2018-07	RAN5#79	R5-183711	-	-	-	TP to add ACLR EN-DC test case	0.5.0
2018-09		R5-185563	-	-	-	FR2_StoreTxRxBeamPeakCoordinates_38.521-3	1.0.0
2018-09		R5-185520	-	-	-	Addition of TRx MU and TT in TS 38.521-3 Annex	1.0.0
2018-09		R5-185503	-	-	-	Add Clause 7.5B.1 into TS 38.521-3	1.0.0
2018-09		R5-185504	-	-	-	Add Clause 7.5B.2 into TS 38.521-3	1.0.0
2018-09 2018-09		R5-185505 R5-184579	-	-	-	Add Clause 7.5B.3 into TS 38.521-3 Updated EN-DC configuration information in clause 5	1.0.0
2018-09		R5-184580	1-	+-	-	TIB value add for EN-DC band in 38.521-3	1.0.0
2018-09		R5-184671	_	-	-	Update of References in clause 2 of 38.521-3 spec	1.0.0
2018-09		R5-184672	-	1_	_	Updates to Operating Bands in clause 5.2	1.0.0
2018-09		R5-184737	1_	-	_	Dual uplink interferer updated to 38.521-3	1.0.0
2018-09		R5-184737	-	1-	-	Dual uplink interferer updated to 38.521-3	1.0.0
2018-09	RAN5#80	R5-185332	-	-	-	Addition of 6.2B.4.1.1 Configured OP for Intra-Band Contiguous EN-	1.0.0
			Ш			DC	
2018-09	RAN5#80	R5-185333	-	-	-	Addition of 6.2B.4.1.2 Configured OP for Intra-Band Non-Contiguous	1.0.0
0040.00	DANE	DE 405505	1			EN-DC	4.0.0
2018-09	_	R5-185507	-	-	-	Addition of 6.2B.4.1.3 Configured OP for Inter-Band within FR1	1.0.0
2018-09	RAN5#80	R5-185198	-	-	-	Addition of 6.2B.4.1.4 Configured OP for Inter-Band EN-DC including FR2	1.0.0
2018-09	RAN5#80	R5-185199	_	-	_	Addition of 6.2B.4.1.5 Configured OP for Inter-Band EN-DC	1.0.0
_0.000	147 11 10 11 00	100100				including both FR1 and FR2	1.5.0
2018-09	RAN5#80	R5-185469	-	1-	-	TP for updating test case 6.2B.3.1 UE AMPR for Intra-band	1.0.0
						contiguous EN-DC	
		D- 40-4-0				TP for updating test case 6.2B.3.2 UE AMPR for Intra-band non-	1.0.0
2018-09	RAN5#80	R5-185470	-	-	-		1.0.0
2018-09		R5-1854/0 R5-185200	-  -	-	_	contiguous EN-DC  TP for updating test case 6.2B.2.1.2 Additional spectrum emission	1.0.0

	I =	1==	1			I=== =	T
2018-09		R5-185556	-	-	-	FR2_UE_BeamlockInvoke_38.521-3	1.0.0
2018-09		R5-185472	-	-	-	Update of TC 6.2B.1.1	1.0.0
2018-09		R5-185473	-	-	-	Introduction of TC 6.2B.1.2 Update of 6.2B.1.3	1.0.0
2018-09		R5-185474	-	-	-	Introduction of TC 7.4B.1	1.0.0
2018-09		R5-185201 R5-185202	-	-	-	Introduction of 7.4B.2	1.0.0
2018-09		R5-185202	-	-	-	Introduction of 7.4B.3	1.0.0
2018-09		R5-185479	-	Ι-	-	Update Occupied Bandwidth for interband EN-DC within FR1	1.0.0
2018-09		R5-185480	1	-	-	Update SEM interband EN-DC within FR1	1.0.0
2018-09		R5-185481	-	Ι-	-	Update ACLR for interband EN-DC within FR1	1.0.0
2018-09		R5-185204	-	Ι-	-	5G NR_EN_DC with FR1_Text update for RX sensitivity	1.0.0
2018-09		R5-185205	<u> </u>			5G NR_EN_DC with FR1_Text_proposal for_TX_Spurious_emission	1.0.0
2018-09		R5-185422	1_	-	<u>-</u>	Alignment of Annex numbering with core spec	1.0.0
2018-09		R5-184897	<u> </u>			Updates to Channel Arrangement clause in 38.521-3	1.0.0
2018-09		R5-185206		<u> </u>	-	Addition of TC6.3B.1.1 Minimum Output power for intra-band	1.0.0
2010-09	KAN5#60	K3-103200	-	-	-	contiguous EN-DC	1.0.0
2018-09	RAN5#80	R5-185207	1_	<u> </u>	_	Addition of TC6.3B.1.2 Minimum output power for intra-band non-	1.0.0
2010 00	10.000	100207				contiguous EN-DC	1.0.0
2018-09	RAN5#80	R5-185208	1-	1_	_	Addition of TC6.3B.1.3 Minimum output power for inter-band EN-DC	1.0.0
2010 00	1	100200				within FR1	1.0.0
2018-09	RAN5#80	R5-185351	-	-	-	Update across EN-DC RF test cases in TS 38.521-3	1.0.0
2018-09	RAN#81	-	-	-	-	raised to v15.0.0 with editorial changes only	15.0.0
2018-12	RAN#82	R5-186503	0033	-	F	FR2 Spurious Emission test case updates	15.1.0
2018-12	RAN#82	R5-186506	0034	-	F	Update Text on Store Beam Peak Coordinate	15.1.0
2018-12	RAN#82	R5-186507	0035	-	F	38.521-3 Applicability Rules	15.1.0
2018-12	RAN#82	R5-186601	0039	-	F	5G NR_EN_DC with FR1_Text update for Intra-Band Contiguous RX	
						sensitivity	
2018-12	RAN#82	R5-186602	0040	-	F	5G NR_Text update for TX spurious emission intra-band contiguous	15.1.0
						EN-DC	
2018-12	RAN#82	R5-186608	0042	-	F	Spurious emission band UE co-existence for Inter-band EN-DC	15.1.0
						within FR1	
2018-12	RAN#82	R5-186672	0044	-	F	Updating test case 6.2B.3.1 Additional Maximum Output Power	15.1.0
						reduction for Intra-band contiguous EN-DC	
2018-12	RAN#82	R5-186673	0045	-	F	Updating test case 6.5B.2.1.2 Additional spectrum emissions mask	15.1.0
0040 40	D 4 1 1 1 1 0 0	DE 400004	0040		_	for intra-band contiguous EN-DC	45.4.0
2018-12	RAN#82	R5-186681	0046	-	F	Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power	15.1.0
2040.40	D 4 N 1#00	DE 400004	0047	1	F	reduction for Intra-Band Contiguous EN-DC	45.4.0
2018-12	RAN#82	R5-186684	0047	-	Г	Updates to test case 6.2B.2.3, UE Maximum Output Power reduction for Inter-Band EN-DC within FR1	15.1.0
2018-12	RAN#82	R5-186788	0049		F	Minor update OBW, SEM and ACLR inter-band FR1 test cases	15.1.0
2018-12	RAN#82	R5-187153	0043		F	Updated EN-DC configuration information in clause 5	15.1.0
2018-12	RAN#82	R5-187371	0001	1_	F	Addition of TC6.3B.2.1 Transmit OFF Power for intra-band	15.1.0
2010-12	10/114#02	107071	0070		'	contiguous EN-DC	13.1.0
2018-12	RAN#82	R5-187372	0077	1-	F	Addition of TC6.3B.2.3 Transmit OFF Power for inter-band EN-DC	15.1.0
						within FR1	
2018-12	RAN#82	R5-187373	0078	-	F	Addition of TC6.3B.2.2 Transmit OFF Power for intra-band non-	15.1.0
						contiguous EN-DC	
2018-12	RAN#82	R5-187552	0083	-	F	Updates to TS 38.521-3 common sections 1-4 to align with core	15.1.0
						spec	
2018-12	RAN#82	R5-187559	0084	-	F	Updates to TS 38.521-3 clause 5 to align with core spec	15.1.0
2018-12	RAN#82	R5-187562	0085	-	F	Update to TC6.5B.3.2.1 - General Spurious Emissions for intra-band	15.1.0
			<u> </u>	L		non-contiguous EN-DC	
2018-12	RAN#82	R5-187563	0086	-	F	Update to 7.3B.2.2 - REFSENS for Intra-band Non-Contiguous EN-	15.1.0
					<u> </u>	DC	
2018-12	RAN#82	R5-187565	0087	Ŀ	F	Updates to TS 38.521-3 clause 4 with LTE anchor details	15.1.0
2018-12	RAN#82	R5-187614	0094	-	F	Updates to EN-DC test case 6.2B.2.2, UE Maximum Output Power	15.1.0
			1			reduction for Intra-Band Non-Contiguous EN-DC	
2018-12	RAN#82	R5-187816	0048	1	F	Adding test case 6.2B.2.4, UE Maximum Output Power reduction for	15.1.0
			1		<u> </u>	Inter-Band EN-DC including FR2	
2018-12	RAN#82	R5-187819	0053	1	F	Update general parameter Connection without release in initial	15.1.0
	D 4	<b>5</b>		<u> </u>	<u> </u>	conditions in TS 38.521-3	
2018-12	RAN#82	R5-187820	0043	1	F	Updates to test case 6.5B.2.1.3, Adjacent channel leakage ratio for	15.1.0
0040.40	D 4 8 1 11 0 0	DE 407004	0050	4	-	intra-band contiguous EN-DC	45.4.0
2018-12	RAN#82	R5-187821	0052	1	F	Addition OBW intraband non contiguous EN-DC	15.1.0
2018-12	RAN#82	R5-187822	0055	1	F	Introduction of New test case 6.4B.2.2.1 Error Vector Magnitude for	15.1.0
2040.40	D V V 1#00	DE 407000	0050	4	-	intra-band non-contiguous EN-DC	4E 4 0
2018-12	RAN#82	R5-187823	0056	1	F	Introduction of New test case 6.4B.2.2.2 Carrier Leakage for intra-	15.1.0
	1		1	_	F	band non-contiguous EN-DC Introduction of New test case 6.4B.2.3.1 Error Vector Magnitude for	15.1.0
2019 12	D 4 N 1400	DE 10700E	OOE O				
2018-12	RAN#82	R5-187825	0058	1	F		13.1.0
						inter-band EN-DC within FR1	
2018-12	RAN#82 RAN#82	R5-187825 R5-187826	0058	1	F		15.1.0

Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC within FR1   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC   S15   Dend EN-DC	0040.40	DAN//00	DE 407007	10000	la	1-	The starting of New York and O. O. O. O. In head Environment (spinor)	4540
2018-12   RANM82   R5-187829   0070   1   F   Introduction of Error Vector Magnitude for Intra-band contiguous EN-DC   15   10   12   12   13   14   15   15   16   16   16   16   16   16	2018-12	RAN#82	R5-187827	0060	1	F	Introduction of New test case 6.4B.2.3.3 In-band Emissions for interband EN-DC within FR1	15.1.0
2018-12   RANNEQ R.5-187829   0071   1   F   Introduction of Carrier Leakage for intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-187831   0089   1   F   FR2 General Spurious Emission test case update   15   2018-12   RANNEQ R.5-187832   0099   1   F   FR2 Reference Sensitivity test case update   15   2018-12   RANNEQ R.5-187833   0090   1   F   Updates to clause 7.83   4.1   TS.38.521-3   15   2018-12   RANNEQ R.5-187833   0090   1   F   Updates to Clause 7.83   4.1   TS.38.521-3   16   2018-12   RANNEQ R.5-187833   0090   1   F   Updates to Clause 5 in TS.38.521-3   16   2018-12   RANNEQ R.5-187933   0067   1   F   Addition of notes to clarify test point selection into general clause of 15   2018-12   RANNEQ R.5-188012   0057   1   F   Introduction of New test case 6.48.2.2.3 In-band Emissions for intra-band contiguous EN-DC   2018-12   RANNEQ R.5-188014   0051   1   F   Addition OBW Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188016   0065   1   F   Addition OBW Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188016   0066   1   F   Addition Spurious emissions for Intra-band contiguous EN-DC   16   2018-12   RANNEQ R.5-188016   0066   1   F   Additional Spurious emissions for Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188018   0068   1   F   Additional Spurious emissions for Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188019   0072   1   F   Additional Spurious emissions for Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188012   0073   1   F   Additional Spurious emissions for Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188012   0073   1   F   Additional Spurious emission for Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188023   0074   1   F   Additional Spurious emission for Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188023   0074   1   F   Additional Spurious emission for Intra-band contiguous EN-DC   15   2018-12   RANNEQ R.5-188023   0074   1   F   Additional Spurious emission for Intra-band contiguous EN-	2018-12	RAN#82	R5-187828	0070	1	F	Introduction of Error Vector Magnitude for intra-band contiguous EN-	15.1.0
2018-12   RANNS2 R5-187832   0089 1   F   FR2 General Spurious Emission test case update   15   2018-12   RANNS2 R5-187832   0089 1   F   FR2 Reference Sensitivity test case update   15   2018-12   RANNS2 R5-187834   0090 1   F   Updates to clause 7.98.3 4 in TS 38.521-3   2018-12   RANNS2 R5-187834   0090 1   F   Updates to sections 1-4 in TS 38.521-3 to align with core spec   15   2018-12   RANNS2 R5-187834   0090 1   F   Updates to Sections 1-4 in TS 38.521-3 to align with core spec   15   2018-12   RANNS2 R5-188012   0057   F   Addition of notes to clarity test point selection into general clause of   15   2018-12   RANNS2 R5-188013   0050 1   F   Addition of notes to clarity test point selection into general clause of   15   2018-12   RANNS2 R5-188013   0050 1   F   Addition of notes to clarity test point selection into general clause of   15   2018-12   RANNS2 R5-188013   0050 1   F   Addition of notes to clarity test point selection into general clause of   15   2018-12   RANNS2 R5-188013   0050 1   F   Addition of New test case 6.4B.2.2.3 in-band Emissions for intra-band non-configuous EN-DC   15   2018-12   RANNS2 R5-188013   0050 1   F   Addition Spurious Emissions for Intra-band contiguous EN-DC   15   2018-12   RANNS2 R5-188016   0055 1   F   Additional Spurious Emissions for Intra-band non-configuous EN-DC   15   2018-12   RANNS2 R5-188017   0066 1   F   Additional Spurious Emissions for Intra-band non-configuous EN-DC   15   2018-12   RANNS2 R5-188020   0073 1   F   Additional Spurious Emissions for Intra-band non-configuous EN-DC   15   2018-12   RANNS2 R5-188021   0074 1   F   Additional Spurious Emissions for Intra-band non-configuous EN-DC   15   2018-12   RANNS2 R5-188022   0075 1   F   Additional Configuous EN-DC   15   2018-12   RANNS2 R5-188023   0075 1   F   Additional Spurious Emission for Intra-band non-configuous EN-DC   15   2018-12   RANNS2 R5-188023   0075 1   F   Additional Spurious Emission for Intra-band Configuous EN-DC   15   2018-12   RANNS2 R5-188023   0075 1   F   Addition	2018-12	RAN#82	R5-187829	0071	1	F	Introduction of Carrier Leakage for intra-band contiguous EN-DC	15.1.0
2018-12   RAMB2Q R5-187833   0092   1   F   Updates to clause 7.38.3.4 in TS 38.521-3   1   2018-12   RAMB2Q R5-187343   0090   1   F   Updates to Sections 1-4 in TS 38.521-3   1   2018-12   RAMB2Q R5-187933   0067   1   F   Updates to Clause 5 in TS 38.521-3   2   2   2   2   2   2   2   2   2	2018-12		R5-187831	0088	1	F	FR2 General Spurious Emission test case update	15.1.0
2018-12   RAMP62 R5-187834   0090   1   F   Updates to sections 1-4 in TS 38.521-3 to align with core spec   15	2018-12	RAN#82	R5-187832	0089	1	F	FR2 Reference Sensitivity test case update	15.1.0
2018-12   RANW82   R5-187835   0091   1   F   Uddates to Clause 5 in TS 38.521-3					1			15.1.0
2018-12   RANN82   R5-187913   0067     F   Addition of notes to clarify test point selection into general clause of 15 TS 38.521-3   S21-3   TS 38.521-3		RAN#82			1			15.1.0
2018-12 RANW82 R5-188013 0050 1 F Addition DSW Inter-band contiguous EN-DC 15 2018-12 RANW82 R5-188014 0051 1 F Addition DSW Inter-band contiguous EN-DC 15 2018-12 RANW82 R5-188015 0064 1 F Addition SEM Inter-band contiguous EN-DC 15 2018-12 RANW82 R5-188016 0065 1 F Addition SEM Inter-band contiguous EN-DC 15 2018-12 RANW82 R5-188018 0068 1 F Additional Spurious Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188018 0068 1 F Additional Spurious Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188018 0068 1 F Additional Spurious Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188019 0072 1 F Introduction of In-band Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188029 0073 1 F Addition of In-band Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188020 0073 1 F Addition of IT-band Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188023 0080 1 F Addition of IT-band Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188023 0080 1 F Addition of IT-band Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188023 0080 1 F Addition of IT-band Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188023 0080 1 F Addition of IT-band Emissions for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188029 0073 1 F Addition of IT-band Emission for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188029 0073 1 F Update of IT-band Emission for Intra-band contiguous EN-DC 15 2018-12 RANW82 R5-188029 0036 1 F Update of IT-band Emission for Intra-band Contiguous EN-DC 15 2018-12 RANW82 R5-188029 0036 1 F Update of IT-Band RANW82 R5-188029 0036 1 F Update of IT-Band RANW82 R5-188029 0036 1 F Update of IT-Band RANW82 R5-188029 0036 1 F Update of IT-Band R5-188029 0036 1 F Update Of IT-Band R5-188029 0036 1 F Update Of IT-Band R5-188029 0036 1 F Update Of IT-Band R5-188029 0036 1 F Update Of IT-Band R5-188029 0036 1 F Update Of IT-Band R5-188029 0036 1 F Update Of IT-Band R5-188029 0036 1 F Update Of IT-Band R5-1880								15.1.0
Description	2018-12	RAN#82	R5-187913	0067	1		TS 38.521-3	15.1.0
2018-12         RAN-R82         RS-188015         5064         1         F         Additional Spurious Emissions for Intra-band contiguous EN-DC         15           2018-12         RAN-R82         RS-188016         5068         1         F         Additional Spurious Emissions for Intra-band contiguous EN-DC         15           2018-12         RAN-R82         RS-188016         5066         1         F         Additional Spurious Emissions for Intra-band contiguous EN-DC         15           2018-12         RAN-R82         RS-188019         6072         1         F         Additional Spurious emission for intra-band contiguous EN-DC         15           2018-12         RAN-R82         RS-188019         0072         1         F         Introduction of In-band Emissions for intra-band contiguous EN-DC         15           2018-12         RAN-R82         RS-188020         0074         1         F         Addition of TGS-33.3.1 Tx ON/OFF time mask for intra-band contiguous EN-DC         15           2018-12         RAN-R82         RS-188022         0075         1         F         Addition of TGS-33.3.3 Tx ON/OFF time mask for intra-band contiguous EN-DC         15           2018-12         RAN-R82         RS-188023         0080         1         F         Addition of TGS-33.3.3 Tx ON/OFF time mask for intra-band contiguous En	2018-12	RAN#82	R5-188012	0057	1	F		15.1.0
2018-12   RAN#82   R5-188015   0064   1   F   Additional Spurious Emissions for Intra-band contiguous EN-DC   15	2018-12	RAN#82	R5-188013	0050	1			15.1.0
2018-12         RAN-R82         R5-188016         0065         1         F         Additional Spurious Emissions for Intra-band non-contiguous EN-DC         15           2018-12         RAN-R82         R5-188018         0068         1         F         Additional Spurious emission for intra-band non-contiguous EN-DC         15           2018-12         RAN-R82         R5-188018         0068         1         F         Spurious emission band UE co-existence for intra-band non-contiguous EN-DC         15           2018-12         RAN-R82         R5-188020         0073         1         F         Addition of TCS-38.3.1 Tx ON/OFF time mask for intra-band contiguous EN-DC         15           2018-12         RAN-R82         R5-188021         0074         1         F         Addition of TCS-38.3.2 Tx ON/OFF time mask for intra-band on-non-contiguous EN-DC         15           2018-12         RAN-R82         R5-188020         0075         1         F         Addition of TCS-38.3.2 Tx ON/OFF time mask for intra-band contiguous EN-DC         15           2018-12         RAN-R82         R5-188023         0080         1         F         Update of test case 6.28.3.1 Tx DN/OFF time mask for intra-band contiguous EN-DC         15           2018-12         RAN-R82         R5-188020         0081         1         F         Addition of TCS-		_						15.1.0
2018-12         RAN#82         R5-188017         0066         1         F         Additional Spurious emission for inter-band EN-DC         15           2018-12         RAN#82         R5-188019         0072         1         F         Formit of the part of the					1			15.1.0
2018-12   RAN#82   R5-188018   0068   1   F   Spurious emission band UE co-existence for intra-band non-configuous EN-DC   15   F   Contiguous EN-DC   15   F   Contiguous EN-DC   15   F   Contiguous EN-DC   15   F   Contiguous EN-DC   15   F   Contiguous EN-DC   15   F   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   15   Contiguous EN-DC   16   Contiguous EN-DC   17   Contiguous EN-DC   17   Contiguous EN-DC   18   Contiguous EN-DC   18   Contiguous EN-DC   18   Contiguous EN-DC   1					1			15.1.0
Contiguous EN-DC   Contiguous					1			15.1.0
2018-12   RAN#82   R5-188020   0073   1   F   Addition of TC6.3B.3.1 TX ON/OFF time mask for intra-band contiguous EN-DC	2018-12	RAN#82	R5-188018	0068	1	F		15.1.0
Contiguous EN-DC	2018-12	RAN#82	R5-188019	0072			Introduction of In-band Emissions for intra-band contiguous EN-DC	15.1.0
2018-12   RAN#82   R5-188021   0074   1   F   Addition of TC6.3B.3.2 Tx ON/OFF time mask for intra-band non-contiguous EN-DC   15   2018-12   RAN#82   R5-188023   0080   1   F   Update of test case 6.5B.2.1.2 Additional spectrum emission mask for intra-band contiguous EN-DC for NS 04   Update of test case 6.2B.2.1.2 Additional spectrum emission mask for intra-band contiguous EN-DC for NS 04   Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC for NS 04   Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC for NS 04   Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC for NS 04   EN-DC for NS 04   EN-DC for NS 04   EN-DC for NS 04   Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC for NS 04   EN-DC	2018-12	RAN#82	R5-188020	0073	1	F		15.1.0
2018-12   RAN#82   R5-188022   0075   1   F   Addition of TGC.38.3.3 TX ON/OFF time mask for inter-band EN-DC   15   within FR1   2018-12   RAN#82   R5-188023   0080   1   F   Update of test case 6.5B.2.1.2 Additional spectrum emission mask   15   for intra-band contiguous EN-DC for NS   04   Update of test case 6.6B.3.1 UE A-MPR for Intra-band contiguous   15   EN-DC for NS   04   Update of test case 6.6B.3.1 UE A-MPR for Intra-band contiguous   15   EN-DC for NS   04   Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous   15   EN-DC for NS   04   EN-DC for NS   04   Update of test case 6.2B.2.1 UE A-MPR for Intra-band contiguous   15   EN-DC for NS   04   EN-DC for NS   04   Update of test case 6.2B.2.1 UE A-MPR for Intra-band contiguous   15   EN-DC for NS   04   EN-DC for NS   04   Update of TM   Intra-band contiguous   15   EN-DC for NS   04   Update of TM   Intra-band contiguous   15   EN-DC for NS   04   Update of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Intra-band contiguous   15   Updates of TM   Upda	2018-12	RAN#82	R5-188021	0074	1	F	Addition of TC6.3B.3.2 Tx ON/OFF time mask for intra-band non-	15.1.0
Continues	2018-12	RAN#82	R5-188022	0075	1	F	Addition of TC6.3B.3.3 Tx ON/OFF time mask for inter-band EN-DC	15.1.0
2018-12   RAN#82   R5-188024   0081   1   F   Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous   15	2018-12	RAN#82	R5-188023	0800	1	F		15.1.0
2018-12   RAN#82   R5-188025   0038   1   F   Update Clause 7.5B.3 in TS 38.521-3   15   2018-12   RAN#82   R5-188026   0041   1   F   SG NR_EN_DC with FR1_Text update for Inter-Band RX sensitivity   15   2018-12   RAN#82   R5-188027   0082   1   F   Update TC 7.4B.3   15   2018-12   RAN#82   R5-188029   0036   1   F   Updates of MU in TS 38.521-3   Annex F during RAN5#81   15   2018-12   RAN#82   R5-188029   0037   1   F   Updates of TT in TS 38.521-3   Annex F during RAN5#81   15   2018-12   RAN#82   R5-188039   0093   1   F   Updates of TT in TS 38.521-3   Annex F during RAN5#81   15   2018-12   RAN#82   R5-188039   0093   1   F   Updates of TT in TS 38.521-3   Annex F during RAN5#81   15   2018-12   RAN#82   R5-188219   0062   1   F   Introduction of receiver spurious emission tests for FR1 inter-band   15   EN-DC   EN-DC   EN-DC   EN-DC   2018-12   RAN#82   R5-188221   0054   1   F   Introduction of wideband intermodulation tests for FR1 inter-band   15   EN-DC   2018-12   RAN#82   R5-188222   0069   1   F   Core alignment CR to capture TS 38.101-3 updates during RAN4#89   R5-191057   0165   F   Introduction of TC 7.5B.0   15   2019-03   RAN#83   R5-191057   0165   F   Introduction of TC 7.5B.0   15   2019-03   RAN#83   R5-191336   0176   F   Updates EN-DC configuration information in clause 5   15   2019-03   RAN#83   R5-191336   0176   F   Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC   2019-03   RAN#83   R5-191637   0193   F   Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC   2019-03   RAN#83   R5-191637   0193   F   Updates to EN-DC test case 6.2B.2.1 UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC   2019-03   RAN#83   R5-191637   0193   F   Updates to EN-DC test case 6.2B.2.1 UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC   EN-DC   2019-03   RAN#83   R5-191637   0193   F   Updates to Th-TO test case 6.5A.2.3   Adjacent channel leakage ratio	2018-12	RAN#82	R5-188024	0081	1	F	Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous	15.1.0
2018-12	2018-12	RAN#82	R5-188025	0038	1	F		15.1.0
2018-12   RAN#82   R5-188027   0082   1   F   Update TC 7.4B.3   15   2018-12   RAN#82   R5-188028   0036   1   F   Updates of TT in TS 38.521-3 Annex F during RAN5#81   15   2018-12   RAN#82   R5-188039   0093   1   F   Updates of TT in TS 38.521-3 Annex F during RAN5#81   15   2018-12   RAN#82   R5-188039   0093   1   F   Updates of TT in TS 38.521-3 Annex F during RAN5#81   15   2018-12   RAN#82   R5-188219   0062   1   F   Introduction of receiver spurious emission tests for FR1 inter-band   15   EN-DC   2018-12   RAN#82   R5-188220   0063   1   F   Introduction of wideband intermodulation tests for FR1 inter-band   15   EN-DC   2018-12   RAN#82   R5-188221   0054   1   F   Introduction of wideband intermodulation tests for FR1 inter-band   15   EN-DC   2018-12   RAN#82   R5-188222   0069   1   F   Core alignment CR to capture TS 38.101-3 updates during   15   RAN#83   R5-191057   0165   F   Introduction of TC 7.5B.0   15   2019-03   RAN#83   R5-19131   0175   F   Adding missing reference to 38.521-3   15   2019-03   RAN#83   R5-191330   0176   F   Updated EN-DC configuration information in clause 5   15   2019-03   RAN#83   R5-191330   0176   F   Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC   2019-03   RAN#83   R5-191340   0178   F   Adding test case 6.5B.2.2.3, Adjacent channel leakage ratio for CA   2019-03   RAN#83   R5-191540   0178   F   Adding test case 6.5B.2.3, Adjacent channel leakage ratio for CA   2019-03   RAN#83   R5-191637   0193   F   Updates to EN-DC test case 6.2B.2.1 UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC   2019-03   RAN#83   R5-191637   0193   F   Updates for T.3B.3 deltaRIB <sub>C</sub> deltaRIBNC for EN-DC   15   2019-03   RAN#83   R5-191637   0193   F   Update for T.3B.3 deltaRIB <sub>C</sub> deltaRIBNC for EN-DC   15   2019-03   RAN#83   R5-191637   0193   F   Update of TC 6.2B.1.1   15   2019-03   RAN#83   R5-192006   0215   F   Update of TC 6.2B.1.1   15   2019-03   RAN#83   R5-192006   0215   F   Update of TC 6					1			15.1.0
2018-12					1			15.1.0
2018-12   RAN#82   R5-188039   0037   1   F   Updates of TT in TS 38.521-3 Annex F during RAN5#81   15   2018-12   RAN#82   R5-188039   0093   1   F   LTE Anchor Link configuration for FR2   15   15   2018-12   RAN#82   R5-188219   0062   1   F   Introduction of receiver spurious emission tests for FR1 inter-band   15   EN-DC   2018-12   RAN#82   R5-188220   0063   1   F   Introduction of wideband intermodulation tests for FR1 inter-band   15   EN-DC   2018-12   RAN#82   R5-188221   0054   1   F   LTE TDD configuration for UE Tx test in EN-DC   15   2018-12   RAN#82   R5-188222   0069   1   F   LTE TDD configuration for UE Tx test in EN-DC   15   2018-12   RAN#83   R5-191057   0165   - F   Introduction of TC 7.5B.0   15   2019-03   RAN#83   R5-191157   0174   - F   Updated EN-DC configuration information in clause 5   15   2019-03   RAN#83   R5-191336   0176   - F   Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC   2019-03   RAN#83   R5-191340   0178   - F   Adding missing reference to 38.521-3   15   2019-03   RAN#83   R5-191340   0178   - F   Adding test case 6.2B.2.2, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC   2019-03   RAN#83   R5-191510   0183   - F   Shared Risk clarification in TS 38.521-3   15   2019-03   RAN#83   R5-191637   0193   - F   Updates to EN-DC test case 6.2B.2.2   UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC   2019-03   RAN#83   R5-191637   0193   - F   Updates for Tin TS 38.521-3   15   2019-03   RAN#83   R5-191667   0205   - F   Addition of 7.3B.3 deltaRlip, deltaRlip. Get Ron-DC   15   2019-03   RAN#83   R5-191667   0205   - F   Entropy					1			15.1.0
2018-12   RAN#82   R5-188039   0093   1   F   LTE Anchor Link configuration for FR2   15   15   16   16   16   16   16   16					1			15.1.0
2018-12					1			15.1.0
2018-12	2018-12	RAN#82	R5-188219	0062	1	F	Introduction of receiver spurious emission tests for FR1 inter-band	15.1.0
2018-12	2018-12	RAN#82	R5-188220	0063	1	F	Introduction of wideband intermodulation tests for FR1 inter-band	15.1.0
RAN4#89   2019-03   RAN#83   R5-191057   0165   - F   Introduction of TC 7.5B.0   15   2019-03   RAN#83   R5-191157   0174   - F   Updated EN-DC configuration information in clause 5   15   2019-03   RAN#83   R5-191231   0175   - F   Adding missing reference to 38.521-3   15   2019-03   RAN#83   R5-191336   0176   - F   Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC   2019-03   RAN#83   R5-191339   0177   - F   Updates to EN-DC test case 6.2B.2.2, UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC   2019-03   RAN#83   R5-191340   0178   - F   Adding test case 6.5A.2.3, Adjacent channel leakage ratio for CA without EN-DC   2019-03   RAN#83   R5-191510   0183   - F   Shared Risk clarification in TS 38.521-3   15   2019-03   RAN#83   R5-191845   0200   - F   Text update for 7.3B.3 deltarIB.c deltarIBNC for EN-DC   15   2019-03   RAN#83   R5-191867   0205   - F   Addition of 7.3B.2.0 Reference sensitivity Minimum Conformance Requirements for EN-DC   15   2019-03   RAN#83   R5-192004   0215   - F   Update of TC 6.2B.1.1   15   2019-03   RAN#83   R5-192006   0216   - F   Update of TC 6.2B.1.3   15   2019-03   RAN#83   R5-192006   0217   - F   Update of TC 6.2B.1.3   15   2019-03   RAN#83   R5-192006   0217   - F   Update of TC 6.2B.1.3   15   2019-03   RAN#83   R5-192006   0217   - F   Update of TC 6.2B.1.3   15   2019-03   RAN#83   R5-192176   0224   - F   TIB.c updated for CA and EN-DC cases   15   2019-03   RAN#83   R5-192207   0225   - F   Update of TC 6.2B.1.3   15   2019-03   RAN#83   R5-192207   0226   - F   Update of TC 6.2B.1.3   15   2019-03   RAN#83   R5-192207   0229   - F   F   F   F   2019-04   RAN#83   R5-192207   0229   - F   F   2019-04   RAN#83   R5-192207   0229   - F   2019-04   RAN#83   R5-192208   0230   - F   38.521-3   2019-03   RAN#83   R5-192207   0229   - F   F   2019-04   RAN#83   R5-192208   0230   - F   38.521-1   Common clause updates to clarify leverage across   15   2019-03   RAN#83   R5-192208   0230   - F	2018-12	RAN#82	R5-188221	0054	1	F	LTE TDD configuration for UE Tx test in EN-DC	15.1.0
2019-03         RAN#83         R5-191157         0174         -         F         Updated EN-DC configuration information in clause 5         15           2019-03         RAN#83         R5-191331         0175         -         F         Adding missing reference to 38.521-3         15           2019-03         RAN#83         R5-191336         0176         -         F         Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC         15           2019-03         RAN#83         R5-191339         0177         -         F         Updates to EN-DC test case 6.2B.2.2, UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC         15           2019-03         RAN#83         R5-191340         0178         -         F         Adding test case 6.5A.2.3, Adjacent channel leakage ratio for CA without EN-DC         15           2019-03         RAN#83         R5-191510         0183         -         F         Shared Risk clarification in TS 38.521-3         15           2019-03         RAN#83         R5-191637         0193         -         F         Shared Risk clarification in TS 38.521-3         15           2019-03         RAN#83         R5-191867         0200         -         F         Text update for 7.3B.3 deltaRIB,c deltaRIBNC for EN-DC         15	2018-12	RAN#82	R5-188222	0069	1	F		15.1.0
2019-03         RAN#83         R5-191157         0174         -         F         Updated EN-DC configuration information in clause 5         15           2019-03         RAN#83         R5-191231         0175         -         F         Adding missing reference to 38.521-3         15           2019-03         RAN#83         R5-191336         0176         -         F         Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC         15           2019-03         RAN#83         R5-191339         0177         -         F         Updates to EN-DC test case 6.2B.2.2, UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC         15           2019-03         RAN#83         R5-191340         0178         -         F         Adding test case 6.5A.2.3, Adjacent channel leakage ratio for CA without EN-DC         15           2019-03         RAN#83         R5-191510         0183         -         F         Shared Risk clarification in TS 38.521-3         15           2019-03         RAN#83         R5-191637         0193         -         F         Updates of TT in TS 38.521-3 Annex F during RAN5#NR4         15           2019-03         RAN#83         R5-191845         0200         -         F         Text update for 7.3B.3 deltaRIB,c deltaRIBNC for EN-DC <td< td=""><td>2019-03</td><td>RAN#83</td><td>R5-191057</td><td>0165</td><td>-</td><td>F</td><td></td><td>15.2.0</td></td<>	2019-03	RAN#83	R5-191057	0165	-	F		15.2.0
2019-03					-	F		15.2.0
2019-03	2019-03			0175	-	F		15.2.0
RAN#83		_			-	F	Updates to EN-DC test case 6.2B.2.1, UE Maximum Output Power	15.2.0
2019-03         RAN#83         R5-191340         0178         -         F         Adding test case 6.5A.2.3, Adjacent channel leakage ratio for CA without EN-DC         15           2019-03         RAN#83         R5-191510         0183         -         F         Shared Risk clarification in TS 38.521-3         15           2019-03         RAN#83         R5-191637         0193         -         F         Updates of TT in TS 38.521-3 Annex F during RAN5#NR4         15           2019-03         RAN#83         R5-191845         0200         -         F         Text update for 7.3B.3 deltaRIB,c deltaRIBNC for EN-DC         15           2019-03         RAN#83         R5-191867         0205         -         F         Addition of 7.3B.2.0 Reference sensitivity Minimum Conformance Requirements for EN-DC         15           2019-03         RAN#83         R5-192004         0215         -         F         Update of TC 6.2B.1.1         15           2019-03         RAN#83         R5-192005         0216         -         F         Update of TC 6.2B.1.2         15           2019-03         RAN#83         R5-192176         0224         -         F         TiB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192177         0225	2019-03	RAN#83	R5-191339	0177	-	F	Updates to EN-DC test case 6.2B.2.2, UE Maximum Output Power	15.2.0
2019-03         RAN#83         R5-191510         0183         -         F         Shared Risk clarification in TS 38.521-3         15           2019-03         RAN#83         R5-191637         0193         -         F         Updates of TT in TS 38.521-3 Annex F during RAN5#NR4         15           2019-03         RAN#83         R5-191845         0200         -         F         Text update for 7.3B.3 deltaRIB,c deltaRIBNC for EN-DC         15           2019-03         RAN#83         R5-191867         0205         -         F         Addition of 7.3B.2.0 Reference sensitivity Minimum Conformance         15           2019-03         RAN#83         R5-192004         0215         -         F         Update of TC 6.2B.1.1         15           2019-03         RAN#83         R5-192005         0216         -         F         Update of TC 6.2B.1.2         15           2019-03         RAN#83         R5-192006         0217         -         F         Update of TC 6.2B.1.3         15           2019-03         RAN#83         R5-192176         0224         -         F         TIB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192206         0228         -         F         Updated to Annex M Dual uplink inter	2019-03	RAN#83	R5-191340	0178	-	F	Adding test case 6.5A.2.3, Adjacent channel leakage ratio for CA	15.2.0
2019-03         RAN#83         R5-191637         0193         -         F         Updates of TT in TS 38.521-3 Annex F during RAN5#NR4         15           2019-03         RAN#83         R5-191845         0200         -         F         Text update for 7.3B.3 deltaRIB,c deltaRIBNC for EN-DC         15           2019-03         RAN#83         R5-191867         0205         -         F         Addition of 7.3B.2.0 Reference sensitivity Minimum Conformance Requirements for EN-DC         15           2019-03         RAN#83         R5-192004         0215         -         F         Update of TC 6.2B.1.1         15           2019-03         RAN#83         R5-192005         0216         -         F         Update of TC 6.2B.1.2         15           2019-03         RAN#83         R5-192006         0217         -         F         Update of TC 6.2B.1.3         15           2019-03         RAN#83         R5-192176         0224         -         F         TIB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192177         0225         -         F         Updated to Annex M Dual uplink interferer         15           2019-03         RAN#83         R5-192206         0228         -         F         Formatting u	2019-03	RAN#83	R5-191510	0183	-	F		15.2.0
2019-03         RAN#83         R5-191845         0200         -         F         Text update for 7.3B.3 deltaRIB,c deltaRIBNC for EN-DC         15           2019-03         RAN#83         R5-191867         0205         -         F         Addition of 7.3B.2.0 Reference sensitivity Minimum Conformance         15           2019-03         RAN#83         R5-192004         0215         -         F         Update of TC 6.2B.1.1         15           2019-03         RAN#83         R5-192005         0216         -         F         Update of TC 6.2B.1.2         15           2019-03         RAN#83         R5-192006         0217         -         F         Update of TC 6.2B.1.3         15           2019-03         RAN#83         R5-192176         0224         -         F         TIB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192177         0225         -         F         Updated to Annex M Dual uplink interferer         15           2019-03         RAN#83         R5-192206         0228         -         F         38.521-3 Common clause updates to clarify leverage across architecture options         15           2019-03         RAN#83         R5-192207         0229         -         F         Formattin					<b>[</b> -			15.2.0
2019-03         RAN#83         R5-191867         0205         -         F         Addition of 7.3B.2.0 Reference sensitivity Minimum Conformance Requirements for EN-DC         15           2019-03         RAN#83         R5-192004         0215         -         F         Update of TC 6.2B.1.1         15           2019-03         RAN#83         R5-192005         0216         -         F         Update of TC 6.2B.1.2         15           2019-03         RAN#83         R5-192006         0217         -         F         Update of TC 6.2B.1.3         15           2019-03         RAN#83         R5-192176         0224         -         F         TIB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192177         0225         -         F         Updated to Annex M Dual uplink interferer         15           2019-03         RAN#83         R5-192206         0228         -         F         38.521-3 Common clause updates to clarify leverage across architecture options           2019-03         RAN#83         R5-192207         0229         -         F         Formatting updates and index correction in TS 38.521-3         15           2019-03         RAN#83         R5-192208         0230         -         F         Format		_			-			15.2.0
2019-03         RAN#83         R5-192004         0215         -         F         Update of TC 6.2B.1.1         15           2019-03         RAN#83         R5-192005         0216         -         F         Update of TC 6.2B.1.2         15           2019-03         RAN#83         R5-192006         0217         -         F         Update of TC 6.2B.1.3         15           2019-03         RAN#83         R5-192176         0224         -         F         TIB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192177         0225         -         F         Updated to Annex M Dual uplink interferer         15           2019-03         RAN#83         R5-192206         0228         -         F         38.521-3 Common clause updates to clarify leverage across architecture options         15           2019-03         RAN#83         R5-192207         0229         -         F         Formatting updates and index correction in TS 38.521-3         15           2019-03         RAN#83         R5-192208         0230         -         F         38.521-1 Common clause updates to clarify leverage across         15					-		Addition of 7.3B.2.0 Reference sensitivity Minimum Conformance	15.2.0
2019-03         RAN#83         R5-192005         0216         -         F         Update of TC 6.2B.1.2         15           2019-03         RAN#83         R5-192006         0217         -         F         Update of TC 6.2B.1.3         15           2019-03         RAN#83         R5-192176         0224         -         F         TIB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192177         0225         -         F         Updated to Annex M Dual uplink interferer         15           2019-03         RAN#83         R5-192206         0228         -         F         38.521-3 Common clause updates to clarify leverage across architecture options         15           2019-03         RAN#83         R5-192207         0229         -         F         Formatting updates and index correction in TS 38.521-3         15           2019-03         RAN#83         R5-192208         0230         -         F         38.521-1 Common clause updates to clarify leverage across         15	2019-03	RAN#83	R5-192004	0215	<b>[</b> -	F		15.2.0
2019-03         RAN#83         R5-192006         0217         -         F         Update of TC 6.2B.1.3         15           2019-03         RAN#83         R5-192176         0224         -         F         TIB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192177         0225         -         F         Updated to Annex M Dual uplink interferer         15           2019-03         RAN#83         R5-192206         0228         -         F         38.521-3 Common clause updates to clarify leverage across architecture options         15           2019-03         RAN#83         R5-192207         0229         -         F         Formatting updates and index correction in TS 38.521-3         15           2019-03         RAN#83         R5-192208         0230         -         F         38.521-1 Common clause updates to clarify leverage across         15					-			15.2.0
2019-03         RAN#83         R5-192176         0224         -         F         TIB,c updated for CA and EN-DC cases         15           2019-03         RAN#83         R5-192177         0225         -         F         Updated to Annex M Dual uplink interferer         15           2019-03         RAN#83         R5-192206         0228         -         F         38.521-3 Common clause updates to clarify leverage across architecture options         15           2019-03         RAN#83         R5-192207         0229         -         F         Formatting updates and index correction in TS 38.521-3         15           2019-03         RAN#83         R5-192208         0230         -         F         38.521-1 Common clause updates to clarify leverage across         15					-	F		15.2.0
2019-03         RAN#83         R5-192177         0225         -         F         Updated to Annex M Dual uplink interferer         15           2019-03         RAN#83         R5-192206         0228         -         F         38.521-3 Common clause updates to clarify leverage across architecture options         15           2019-03         RAN#83         R5-192207         0229         -         F         Formatting updates and index correction in TS 38.521-3         15           2019-03         RAN#83         R5-192208         0230         -         F         38.521-1 Common clause updates to clarify leverage across         15	2019-03			0224	Ŀ			15.2.0
2019-03         RAN#83         R5-192206         0228         -         F         38.521-3 Common clause updates to clarify leverage across architecture options         15           2019-03         RAN#83         R5-192207         0229         -         F         Formatting updates and index correction in TS 38.521-3         15           2019-03         RAN#83         R5-192208         0230         -         F         38.521-1 Common clause updates to clarify leverage across         15					-			15.2.0
2019-03         RAN#83         R5-192207         0229         -         F         Formatting updates and index correction in TS 38.521-3         15           2019-03         RAN#83         R5-192208         0230         -         F         38.521-1 Common clause updates to clarify leverage across         15					-		38.521-3 Common clause updates to clarify leverage across	15.2.0
2019-03 RAN#83 R5-192208 0230 - F 38.521-1 Common clause updates to clarify leverage across 15	2019-03	RAN#83	R5-192207	0229	<b>1</b> -	F		15.2.0
					-	F		15.2.0
	2019-03	RAN#83	R5-192209	0231	-	F	38.521-2 Common clause updates to clarify leverage across	15.2.0

Section   Sect	2019-03	RAN#83	R5-192242	0237	-	F	Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous	15.2.0
Including FRZ	2010.02	D 4 N 1#02	DE 100010	0000		_		15.0.0
mask for intra-band continguous EN-DC					-		including FR2	
2019-03   RAN883   R5-192425   0167   1   F   Update of TC 7.58.1   15.2 0   15.2	2019-03	RAN#83	R5-192244	0239	-	F		15.2.0
2019-03   RAN83   R5-192424   0159   1   F   Introduction of TC 7.58.4   15.2.0	2019-03	RAN#83	R5-192423	0157	1	F	ů	15.2.0
2019-03   RANN83   RS-192425   0168   1   F   Under of TC 7-8B.3     152.0   152.0   2019-03   RANN83   RS-192426   0182   1   F   Introduction of NSA FR1 7-8B.2.1 Inband blocking for intra-band EN-								
2019-03   RANN83   R5-192427   0190   1   F   Introduction of NSA FR1 7,68 2.1 liband blocking for intra-band   15.2 or configuous EN-DC in FR1   1.0 pt. 1.								
2019-03   RAN#83   R5-192428   0182   1   F							Introduction of NSA FR1 7.6B.2.1 Inband blocking for intra-band	
2019-03   RAN#83   R5-192439   0184   1   F	2019-03	RAN#83	R5-192428	0182	1	F		15.2.0
Section   Continues   Contin	2019-03	RAN#83	R5-192429	0184	1	F		15 2 0
Section							band contiguous EN-DC in FR1	
September   Sept							band non-contiguous EN-DC in FR1	
2019-03   RAN#83   R5-192432   0187   1   F   Introduction of NSA FR1 7.68.4.1 Narrow band blocking for intra-band configuous EN-DC in FR1   152.0	2019-03	RAN#83	R5-192431	0186	1	F		15.2.0
2019-03   RAN#83   R5-192434   0188   1   F   Introduction of NSA FR1 7.68.4.2 Narrow band blocking for intra-band continuous EN-DC in FR1   15.2.0   2019-03   RAN#83   R5-192435   0190   1   F   Introduction of NSA FR1 7.68.4.3 Narrow band blocking for inter-band continuous EN-DC in FR1   1000   1000   1   F   Introduction of NSA FR1 7.78.1 Spurious Response for intra-band continuous EN-DC within FR1   15.2.0   2019-03   RAN#83   R5-192436   0191   1   F   Introduction of NSA FR1 7.78.1 Spurious Response for intra-band continuous EN-DC in FR1   1000   1	2019-03	RAN#83	R5-192432	0187	1	F		15.2.0
2019-03   RAN#83   R5-192434   0189   1   F   Introduction of NSA FRT 7.68.4.3 Narrow band blocking for inter- band EN-DC within FRT   15.20	2019-03	RAN#83	R5-192433	0188	1	F	Introduction of NSA FR1 7.6B.4.2 Narrow band blocking for intra-	15.2.0
2019-03   RAN#83   R5-192435   0190   1   F   Introduction of NSA FR1 7.78.1 Spurious Response for intra-band   15.2.0	2019-03	RAN#83	R5-192434	0189	1	F	Introduction of NSA FR1 7.6B.4.3 Narrow band blocking for inter-	15.2.0
2019-03   RAN#83   R5-192436   0191   1   F   Introduction of NSA FR1 7.7B.2 Spurious Response for intra-band   15.2.0	2019-03	RAN#83	R5-192435	0190	1	F	Introduction of NSA FR1 7.7B.1 Spurious Response for intra-band	15.2.0
	2019-03	RAN#83	R5-192436	0191	1	F		15.2.0
EN-DC within FR1   Sex Update for 7.38.2 2 Reference sensitivity for Intra-band noncontiguous EN-DC   Sex Update for 7.38.2 2 Reference sensitivity for Intra-band noncontiguous EN-DC   Sex Update for 7.38.2 2 Reference sensitivity for Intra-band noncontiguous EN-DC   Sex Update for 7.38.2 2 Reference sensitivity for Intra-band noncontiguous EN-DC   Sex Updates for Inter-band CA between FR1 and   Sex Updates f	2019-03	RAN#83	R5-192437	0192	1	F	non-contiguous EN-DC in FR1	15 2 0
Contiguous EN-DC							EN-DC within FR1	
Clause 7   Clause 7   Clause 7   Clause 7   Clause 7   F   Editorial: Band combinations for Inter-band CA between FR1 and 15.2.0   2019-03   RAN#83   R5-192441   0232   1   F   T5 38.521-3 clause 5 updates to align with core specification   15.2.0   2019-03   RAN#83   R5-192443   0220   1   F   Addition of TC6.3B.4.3   PRACH Time Mask for inter-band EN-DC   15.2.0   within FR1   Update of EN-DC 6.2B.4.1.3 Configured transmitted power interband within FR1   Update of EN-DC 6.2B.4.1.3 Configured transmitted power interband within FR1   Update of EN-DC 6.2B.4.1.3 Configured transmitted power interband within FR1   T5 38.521-3 corrections and clean-up to TC categories within   15.2.0   2019-03   RAN#83   R5-192453   0198   1   F   FR2 NSA Spurious Emission Coexistence test case   15.2.0   2019-03   RAN#83   R5-192454   0199   1   F   FR2 NSA Spurious Emission Coexistence test case   15.2.0   2019-03   RAN#83   R5-192455   0221   1   F   Addition of transmit modulation quality test cases for inter-band EN-DC including FR2   15.2.0   2019-03   RAN#83   R5-192456   0222   1   F   Introduction 6.5B.1.4 OBW interband EN-DC including FR2   15.2.0   2019-03   RAN#83   R5-192459   0236   1   F   Introduction 6.5B.2.4 Sex Interband EN-DC including FR2   15.2.0   2019-03   RAN#83   R5-192459   0236   1   F   Addition of TC6.3B.4.3 ACLR interband EN-DC including FR2   15.2.0   2019-03   RAN#83   R5-192459   0236   1   F   Addition of TC6.3B.4.3 PRACH Time Mask for intra-band   15.2.0   2019-03   RAN#83   R5-192600   0196   1   F   Addition of TC6.3B.4.2 PRACH Time Mask for intra-band non-contiguous EN-DC   15.2.0   2019-03   RAN#83   R5-192600   0201   1   F   Addition of TC6.3B.4.2 PRACH Time Mask for intra-band non-contiguous EN-DC   15.2.0   2019-03   RAN#83   R5-192600   0201   1   F   Text Update for 6.5B.3.3 Spurious Emissions for intra-band non-contiguous EN-DC   15.2.0   2019-03   RAN#83   R5-192600   0204   1   F   Text Update for 6.5B.3.3 Spurious Emissions for intra-band contiguous EN-DC   15.2.0   2019-03   RAN#					1		contiguous EN-DC	
FR2   Collaborary   FR2	2019-03	RAN#83	R5-192439	0234	1	F		15.2.0
2019-03   RAN#83   RS-192442   0232   1   F   TS 38.521-3 clause 5 updates to align with core specification   15.2.0	2019-03	RAN#83	R5-192440	0179	1	F		15.2.0
2019-03   RAN#83   R5-192442   0195   1   F   Addition of TC6.3B.4.3   PRACH Time Mask for inter-band EN-DC   15.2.0   within FR1   15.2.0   2019-03   RAN#83   R5-192445   0233   1   F   Update of EN-DC 6.2B.4.1.3   Configured transmitted power interband within FR1   15.2.0   2019-03   RAN#83   R5-192445   0233   1   F   TS 38.521-3   corrections and clean-up to TC categories within   15.2.0   2019-03   RAN#83   R5-192453   0198   1   F   FR2 NSA Spurious Emission Coexistence test case   15.2.0   2019-03   RAN#83   R5-192454   0199   1   F   FR2 NSA Spurious Emission Coexistence test case   15.2.0   2019-03   RAN#83   R5-192455   0221   1   F   Addition of transmit modulation quality test cases for inter-band EN-DC including FR2   15.2.0   2019-03   RAN#83   R5-192457   0223   1   F   Introduction 6.5B.2.4.3   ACLR interband EN-DC including FR2   15.2.0   2019-03   RAN#83   R5-192458   0226   1   F   Introduction 6.5B.2.4.3   ACLR interband EN-DC including FR2   15.2.0   2019-03   RAN#83   R5-192459   0236   1   F   Addition of TC6.3B.4.1   All minimum Output Power for EN-DC   15.2.0   2019-03   RAN#83   R5-192600   0196   1   F   Addition of TC6.3B.4.1   PRACH Time Mask for intra-band non-contiguous EN-DC   2019-03   RAN#83   R5-192601   0197   1   F   Addition of TC6.3B.4.1   PRACH Time Mask for intra-band non-contiguous EN-DC   2019-03   RAN#83   R5-192601   0197   1   F   Addition of TC6.3B.4.2   PRACH Time Mask for intra-band non-contiguous EN-DC   2019-03   RAN#83   R5-192605   0203   1   F   Text Update for 6.5B.3.3   Spurious Emissions for Intra-band contiguous EN-DC   2019-03   RAN#83   R5-192606   0204   1   F   Text Update for 6.5B.3.3   Spurious Emissions for Intra-band contiguous EN-DC   2019-03   RAN#83   R5-192606   0204   1   F   Text Update for 6.5B.3.3   Spurious Emissions for Intra-band contiguous EN-DC   2019-03   RAN#83   R5-192606   0204   1   F   Text Update for 6.5B.3.3   Spurious Emissions for Intra-band contiguous EN-DC   2019-03   RAN#83   R5-192607   0209   1   F   Update for 6.5B.	2019-03	RAN#83	R5-192441	0232	1	F		15.2.0
2019-03   RAN#83   R5-192445   0220   1   F   Update of EN-DC 6.2B.4.1.3 Configured transmitted power interband within FR1   15.2.0							Addition of TC6.3B.4.3 PRACH Time Mask for inter-band EN-DC	
2019-03   RAN#83   R5-192445   0233   1   F   TS 38.521-3 corrections and clean-up to TC categories within   15.2.0	2019-03	RAN#83	R5-192443	0220	1	F	Update of EN-DC 6.2B.4.1.3 Configured transmitted power inter-	15.2.0
2019-03   RAN#83   R5-192453   0198   1   F   FR2 NSA Spurious Emission Coexistence test case   15.2.0	2019-03	RAN#83	R5-192445	0233	1	F	TS 38.521-3 corrections and clean-up to TC categories within	15.2.0
2019-03         RAN#83         R5-192454         0199         1         F         FR2 NSA Frequency Error test case         15.2.0           2019-03         RAN#83         R5-192455         0221         1         F         Addition of transmit modulation quality test cases for inter-band EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192456         0222         1         F         Introduction 6.5B.1.4 OBW interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192457         0223         1         F         Introduction 6.5B.2.4.1 SEM interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192459         0236         1         F         Introduction 6.5B.2.4.3 ACLR interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192459         0236         1         F         Introduction 6.5B.2.4.3 ACLR interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192459         0236         1         F         Introduction 6.5B.2.4.1 PRACH Time Mask for intra-band including FR2         15.2.0           2019-03         RAN#83         R5-192600         0196         1         F         Clean up of occupied bandwidth for EN-DC within FR1         15.2.0	2019-03	RAN#83	R5-102453	0108	1	F		15 2 0
2019-03								
2019-03         RAN#83         R5-192456         0222         1         F         Introduction 6.5B.1.4 OBW interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192457         0223         1         F         Introduction 6.5B.2.4.1 SEM interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192458         0226         1         F         Introduction 6.5B.2.4.3 ACLR interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192459         0236         1         F         Addition of TC6.3B.1.4 - Minimum Output Power for EN-DC         15.2.0           2019-03         RAN#83         R5-192535         0194         1         F         Clean up of occupied bandwidth for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192600         0196         1         F         Addition of TC6.3B.4.1 PRACH Time Mask for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192601         0197         1         F         Text Update for 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192604         0202         1         F         Text Update for 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC							Addition of transmit modulation quality test cases for inter-band EN-	
2019-03         RAN#83         R5-192457         0223         1         F         Introduction 6.5B.2.4.1 SEM interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192458         0226         1         F         Introduction 6.5B.2.4.3 ACLR interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192459         0236         1         F         Addition of TC6.3B.1.4 - Minimum Output Power for EN-DC interband including FR2         15.2.0           2019-03         RAN#83         R5-192535         0194         1         F         Clean up of occupied bandwidth for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192600         0196         1         F         Addition of TC6.3B.4.1 PRACH Time Mask for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192601         0197         1         F         Text Update for 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192604         0202         1         F         Text Update for 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.4 Additional Spuri	2010.02	D V VIAOO	DE 100456	0222	1	_		15 2 0
2019-03         RAN#83         R5-192458         0226         1         F         Introduction 6.5B.2.4.3 ACLR interband EN-DC including FR2         15.2.0           2019-03         RAN#83         R5-192459         0236         1         F         Addition of TC6.3B.1.4 - Minimum Output Power for EN-DC Interband including FR2         15.2.0           2019-03         RAN#83         R5-192535         0194         1         F         Clean up of occupied bandwidth for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192600         0196         1         F         Addition of TC6.3B.4.1 PRACH Time Mask for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192601         0197         1         F         Addition of TC6.3B.4.2 PRACH Time Mask for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192603         0201         1         F         Text Update for 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Intra-band EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4								
2019-03         RAN#83         R5-192459         0236         1         F         Addition of TC6.3B.1.4 - Minimum Output Power for EN-DC Interband including FR2         15.2.0           2019-03         RAN#83         R5-192535         0194         1         F         Clean up of occupied bandwidth for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192600         0196         1         F         Addition of TC6.3B.4.1 PRACH Time Mask for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192601         0197         1         F         Addition of TC6.3B.4.2 PRACH Time Mask for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192603         0201         1         F         Text Update for 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192604         0202         1         F         Text Update for 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Inter-band EN-DC         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for								
Interband including FR2   2019-03   RAN#83   R5-192600   0196   1   F   Clean up of occupied bandwidth for EN-DC within FR1   15.2.0   2019-03   RAN#83   R5-192601   0197   1   F   Addition of TC6.3B.4.1   PRACH Time Mask for intra-band contiguous EN-DC   2019-03   RAN#83   R5-192601   0197   1   F   Addition of TC6.3B.4.2   PRACH Time Mask for intra-band non-contiguous EN-DC   2019-03   RAN#83   R5-192603   0201   1   F   Text Update for 6.5B.3.2   Spurious Emissions for intra-band non-contiguous EN-DC   2019-03   RAN#83   R5-192604   0202   1   F   Text Update for 6.5B.3.1   Spurious Emissions for intra-band contiguous EN-DC   2019-03   RAN#83   R5-192605   0203   1   F   Text Update for 6.5B.3.3   Spurious Emissions for Inter-band EN-DC   15.2.0   within FR1   2019-03   RAN#83   R5-192606   0204   1   F   Text Update for 6.5B.4   Additional Spurious Emissions for EN-DC   15.2.0   2019-03   RAN#83   R5-192607   0209   1   F   Update to Carrier Leakage for intra-band contiguous EN-DC   2019-03   RAN#83   R5-192609   0211   1   F   Update to Carrier Leakage for intra-band contiguous EN-DC   2019-03   RAN#83   R5-192601   0227   1   F   Update to In-band Emissions for intra-band contiguous EN-DC   2019-03   RAN#83   R5-192610   0227   1   F   Update to In-band Emissions for intra-band contiguous EN-DC   2019-03   RAN#83   R5-192611   0158   1   F   Update of TC 7.5B.2   2019-03   RAN#83   R5-192611   0158   1   F   Update of TC 7.5B.2   2019-03   RAN#83   R5-192617   0167   1   F   Introducing Wideband Intermodulation for intra-band EN-DC in FR1   15.2.0   2019-03   RAN#83   R5-192617   0167   1   F   Introducing Wideband Intermodulation for intra-band EN-DC in FR1   15.2.0   2019-03   RAN#83   R5-192617   0167   1   F   Introducing Wideband Intermodulation for intra-band EN-DC in FR1   15.2.0   2019-03   RAN#83   R5-192617   0167   1   F   Introducing Wideband Intermodulation for intra-band EN-DC in FR1   15.2.0   2019-03   RAN#83   R5-192617   0167   1   F   Introducing Wideband Intermodulation for intra-ban								
2019-03         RAN#83         R5-192535         0194         1         F         Clean up of occupied bandwidth for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192600         0196         1         F         Addition of TC6.3B.4.1 PRACH Time Mask for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192601         0197         1         F         Addition of TC6.3B.4.2 PRACH Time Mask for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192603         0201         1         F         Text Update for 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192604         0202         1         F         Text Update for 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Intra-band EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192608         0210         1         F         Update to C	2013 03	14/414//05	10 102400	0230	ļ '	ļ'		10.2.0
2019-03         RAN#83         R5-192600         0196         1         F         Addition of TC6.3B.4.1 PRACH Time Mask for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192601         0197         1         F         Addition of TC6.3B.4.2 PRACH Time Mask for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192603         0201         1         F         Text Update for 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192604         0202         1         F         Text Update for 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Intra-band EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192607         0209         1         F         Update to Carrier Leakage for intra-band contiguous EN-DC DC         15.2.0           2019-03         RAN#83         R5-192609         0211         1         F         Up	2019-03	RAN#83	R5-192535	0194	1	F		15.2.0
2019-03         RAN#83         R5-192601         0197         1         F         Addition of TC6.3B.4.2 PRACH Time Mask for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192603         0201         1         F         Text Update for 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192604         0202         1         F         Text Update for 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Inter-band EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192607         0209         1         F         Update to Carrier Leakage for intra-band contiguous EN-DC DC         15.2.0           2019-03         RAN#83         R5-192608         0210         1         F         Introduction of Error Vector Magnitude for intra-band contiguous EN-DC DC         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>Addition of TC6.3B.4.1 PRACH Time Mask for intra-hand</td><td></td></td<>							Addition of TC6.3B.4.1 PRACH Time Mask for intra-hand	
2019-03         RAN#83         R5-192603         0201         1         F         Text Update for 6.5B.3.2 Spurious Emissions for intra-band non-contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192604         0202         1         F         Text Update for 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Inter-band EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192607         0209         1         F         Update to Carrier Leakage for intra-band contiguous EN-DC pc         15.2.0           2019-03         RAN#83         R5-192608         0210         1         F         Update to In-band Emissions for intra-band contiguous EN-DC pc         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>contiguous EN-DC</td> <td></td>							contiguous EN-DC	
2019-03         RAN#83         R5-192604         0202         1         F         Text Update for 6.5B.3.1 Spurious Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Inter-band EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192607         0209         1         F         Update to Carrier Leakage for intra-band contiguous EN-DC pc         15.2.0           2019-03         RAN#83         R5-192608         0210         1         F         Introduction of Error Vector Magnitude for intra-band contiguous EN-DC pc         15.2.0           2019-03         RAN#83         R5-192609         0211         1         F         Update to In-band Emissions for intra-band contiguous EN-DC pc         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2							contiguous EN-DC	
2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Inter-band EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC within FR1         15.2.0           2019-03         RAN#83         R5-192607         0209         1         F         Update to Carrier Leakage for intra-band contiguous EN-DC pc         15.2.0           2019-03         RAN#83         R5-192608         0210         1         F         Introduction of Error Vector Magnitude for intra-band contiguous EN-DC pc         15.2.0           2019-03         RAN#83         R5-192609         0211         1         F         Update to In-band Emissions for intra-band contiguous EN-DC pc         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2         15.2.0           2019-03         RAN#83         R5-192617         0167         1         F         Introducing Wideband Intermodulation for intra-band EN-DC in FR1         15.							contiguous EN-DC	
2019-03         RAN#83         R5-192605         0203         1         F         Text Update for 6.5B.3.3 Spurious Emissions for Inter-band EN-DC         15.2.0           2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC         15.2.0           2019-03         RAN#83         R5-192607         0209         1         F         Update to Carrier Leakage for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192608         0210         1         F         Introduction of Error Vector Magnitude for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192609         0211         1         F         Update to In-band Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2         15.2.0           2019-03         RAN#83         R5-192617         0167         1         F         Introducing Wideband Intermodulation for intra-band EN-DC in FR1         15.2.0	2019-03	RAN#83	R5-192604	0202	1	F		15.2.0
2019-03         RAN#83         R5-192606         0204         1         F         Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC         15.2.0           2019-03         RAN#83         R5-192607         0209         1         F         Update to Carrier Leakage for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192608         0210         1         F         Introduction of Error Vector Magnitude for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192609         0211         1         F         Update to In-band Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2         15.2.0           2019-03         RAN#83         R5-192617         0167         1         F         Introducing Wideband Intermodulation for intra-band EN-DC in FR1         15.2.0	2019-03	RAN#83	R5-192605	0203	1	F		15.2.0
2019-03         RAN#83         R5-192607         0209         1         F         Update to Carrier Leakage for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192608         0210         1         F         Introduction of Error Vector Magnitude for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192609         0211         1         F         Update to In-band Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2         15.2.0           2019-03         RAN#83         R5-192617         0167         1         F         Introducing Wideband Intermodulation for intra-band EN-DC in FR1         15.2.0	2019-03	RAN#83	R5-192606	0204	1	F		15.2.0
2019-03         RAN#83         R5-192608         0210         1         F         Introduction of Error Vector Magnitude for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192609         0211         1         F         Update to In-band Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2         15.2.0           2019-03         RAN#83         R5-192617         0167         1         F         Introducing Wideband Intermodulation for intra-band EN-DC in FR1         15.2.0	2019-03			0209	1	F		
2019-03         RAN#83         R5-192609         0211         1         F         Update to In-band Emissions for intra-band contiguous EN-DC         15.2.0           2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2         15.2.0           2019-03         RAN#83         R5-192617         0167         1         F         Introducing Wideband Intermodulation for intra-band EN-DC in FR1         15.2.0							Introduction of Error Vector Magnitude for intra-band contiguous EN-	
2019-03         RAN#83         R5-192610         0227         1         F         Clarification on UL slots in OBW, SEM and ACLR in TS 38.521-3         15.2.0           2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2         15.2.0           2019-03         RAN#83         R5-192617         0167         1         F         Introducing Wideband Intermodulation for intra-band EN-DC in FR1         15.2.0	2019-03	RAN#83	R5-192609	0211	1	F		15.2.0
2019-03         RAN#83         R5-192611         0158         1         F         Update of TC 7.5B.2         15.2.0           2019-03         RAN#83         R5-192617         0167         1         F         Introducing Wideband Intermodulation for intra-band EN-DC in FR1         15.2.0								
2019-03 RAN#83 R5-192617 0167 1 F Introducing Wideband Intermodulation for intra-band EN-DC in FR1 15.2.0				0158	1	F	Update of TC 7.5B.2	15.2.0
					1			
	2019-03		R5-192618		1	F		

2019-03	RAN#83	R5-192619	0181	1	F	Introduction of NSA FR1 7.6B.2.2 Inband blocking for intra-band	15.2.0
						non-contiguous EN-DC in FR1	
2019-03	RAN#83	R5-192620	0206	1	F	Text Update for 7.3B.2.1 Reference sensitivity for Intra-band Contiguous EN-DC	15.2.0
2019-03	RAN#83	R5-192622	0170	1	F	Updates of MU in TS 38.521-3 Annex F during RAN5#82	15.2.0
2019-03	RAN#83	R5-192623	0171	1	F	Updates of TT in TS 38.521-3 Annex F during RAN5#82	15.2.0
2019-03	RAN#83	R5-192626	0214	1	F	Update of TC 7.4B.2	15.2.0
2019-03	RAN#83	R5-192681	0235	1	F	Addition of TC6.2B.1.4 - Max Output Power for EN-DC Interband including FR2	15.2.0
2019-03	RAN#83	R5-192689	0218	1	F	Update of 6.2B.4.1.1 Configured output power Intra-band contiguous EN-DC	15.2.0
2019-03	RAN#83	R5-192690	0219	1	F	Update of EN-DC 6.2B.4.1.2 Configured transmitted power Intra- band non-contiguous	15.2.0
2019-03	RAN#83	R5-192844	0213	2	F	Update of TC 7.4B.1	15.2.0
2019-03	RAN#83	R5-192847	0212	1	F	Addition of 7.4B.0	15.2.0
2019-03	RAN#83	R5-192863	0172	1	F	Introduction of TxIM (inter-band EN-DC within FR1)	15.2.0
2019-03	RAN#83	-	-	1-	<u>-</u>	Editorial correction of references to TS 38.508-1 clause 4.6 tables	15.2.0
2019-06	RAN#84	R5-193539	0294	1-	F	Adding missing reference in 38.521-3	15.3.0
2019-06	RAN#84	R5-193546	0295	-	F	Updates to 6.2B.2.3, UE Maximum Output power reduction for inter-	15.3.0
2019-06	RAN#84	R5-193547	0296	-	F	band EN-DC within FR1  Adding test case 6.2B.2.5, UE Maximum Output power reduction for linear band EN DC including both ED1 and ED2	15.3.0
2019-06	RAN#84	R5-193548	0297	-	F	inter-band EN-DC including both FR1 and FR2 Update of test case 6.2B.2.1, UE Maximum Output Power reduction	15.3.0
0040.00	DANIII'S 1	DE 400711	0000	-	_	for Intra-Band Contiguous EN-DC	45.0.0
2019-06	RAN#84	R5-193714	0309	-	F	Update of Clause 5.5B Configuration for DC	15.3.0
2019-06	RAN#84	R5-193719	0311	-	F	Update of TC 7.5B.2 ACS for intra-band non-contiguous 2CC	15.3.0
2019-06	RAN#84	R5-193720	0312	-	F	Update of TC 7.5B.3 ACS for inter-band FR1 2CC	15.3.0
2019-06	RAN#84	R5-193722	0314	-	F	Update of TC 7.5B.4.1 ACS for inter-band FR2 2CC	15.3.0
2019-06	RAN#84	R5-193724	0316	-	F	Introduction of TC 7.5B.4.3 ACS for inter-band FR2 4CC	15.3.0
2019-06	RAN#84	R5-193725	0317	-	F	Introduction of TC 7.5B.4.4 ACS for inter-band FR2 5CC	15.3.0
2019-06	RAN#84	R5-193726	0318	-	F	Introduction of TC 7.5B.4.5 ACS for inter-band FR2 6CC	15.3.0
2019-06	RAN#84	R5-193727	0319	-	F	Introduction of TC 7.5B.5 inter-band FR1 FR2 3CC	15.3.0
2019-06	RAN#84	R5-193886	0320	-	F	Introduction of NSA FR2 7.6B.2.4.1	15.3.0
2019-06	RAN#84	R5-193888	0322	-	F	Update of NSA FR1 7.6B.2.0	15.3.0
2019-06	RAN#84	R5-193896	0324	-	F	Update of NSA FR1 7.6B.2.2	15.3.0
2019-06	RAN#84	R5-193899	0326	-	F	Update of NSA FR1 7.6B.3.1	15.3.0
2019-06	RAN#84	R5-193900	0327	-	F	Update of NSA FR1 7.6B.3.2	15.3.0
2019-06	RAN#84	R5-193901	0328	-	F	Update of NSA FR1 7.6B.4.0	15.3.0
2019-06	RAN#84	R5-193902	0329	-	F	Update of NSA FR1 7.6B.4.1	15.3.0
2019-06	RAN#84	R5-193903	0330	-	F	Update of NSA FR1 7.6B.4.2	15.3.0
2019-06	RAN#84	R5-193904	0331	-	F	Update of NSA FR1 7.7B.0	15.3.0
2019-06	RAN#84	R5-193905	0332	-	F	Update of NSA FR1 7.7B.1	15.3.0
2019-06	RAN#84	R5-193906	0333	-	F	Update of NSA FR1 7.7B.2	15.3.0
2019-06	RAN#84	R5-193947	0343	t	F	Removing invalid test IDs from test case 6.5B.2.1.3	15.3.0
2019-06	RAN#84	R5-194016	0344	1_	F	38.521-3 Annex re-alignment	15.3.0
2013 00	TV/TIN#OT	113 134010	0044		'	00.021 9 Attrick to diigrimone	10.0.0
2019-06	RAN#84	DE 404400	00.47	+	F		
			10347	I -		LAddition SEM intrahand non-contiguous EN-DC in 1S 38 521-3	1530
12019-06		R5-194128	0347	-		Addition SEM intraband non-contiguous EN-DC in TS 38.521-3	15.3.0 15.3.0
2019-06	RAN#84	R5-194129	0348	-  -  -	F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3	15.3.0
2019-06	RAN#84 RAN#84	R5-194129 R5-194164	0348 0351	-	F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC	15.3.0 15.3.0
2019-06	RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166	0348 0351 0353	-	F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1	15.3.0 15.3.0 15.3.0
2019-06	RAN#84 RAN#84 RAN#84	R5-194129 R5-194164	0348 0351	- - -	F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1	15.3.0 15.3.0 15.3.0
2019-06	RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166	0348 0351 0353	- - - -	F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC	15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317	0348 0351 0353 0359	- - - -	F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous	15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318	0348 0351 0353 0359 0360	- - - - -	F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC	15.3.0 15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318 R5-194319	0348 0351 0353 0359 0360	- - - - - -	F F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC	15.3.0 15.3.0 15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318 R5-194319 R5-194320	0348 0351 0353 0359 0360 0361 0362	-	F F F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC Text Update for 7.3B.3 Text Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band EN-DC within FR1	15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318 R5-194319 R5-194320	0348 0351 0353 0359 0360 0361 0362	-	F F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC Text Update for 7.3B.3 Text Update for 6.5B.3.3.2 Spurious emission band UE co-existence	15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318 R5-194319 R5-194320 R5-194374	0348 0351 0353 0359 0360 0361 0362 0366	-	F F F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC Text Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band EN-DC within FR1 Text Update for 7.3B.2.2 Ref sensitivity for Intra-band Non-Contiguous EN-DC Text Update for 7.3B.2.2 Ref sensitivity for Intra-band Non-Contiguous EN-DC Text Update for 7.3B.2.0 Min Requirements of Ref sensitivity for EN-	15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318 R5-194319 R5-194320 R5-194374	0348 0351 0353 0359 0360 0361 0362 0366		F F F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC Text Update for 7.3B.3 Text Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band EN-DC within FR1 Text Update for 7.3B.2.2 Ref sensitivity for Intra-band Non-Contiguous EN-DC Text Update for 7.3B.2.0 Min Requirements of Ref sensitivity for EN-DC Update to Carrier Leakage and In-band Emissions for intra-band	15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318 R5-194319 R5-194320 R5-194374 R5-194375 R5-194376	0348 0351 0353 0359 0360 0361 0362 0366 0367 0368	- - -	F F F F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC Text Update for 7.3B.3 Text Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band EN-DC within FR1 Text Update for 7.3B.2.2 Ref sensitivity for Intra-band Non-Contiguous EN-DC Text Update for 7.3B.2.0 Min Requirements of Ref sensitivity for EN-DC Update to Carrier Leakage and In-band Emissions for intra-band contiguous EN-DC	15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318 R5-194319 R5-194320 R5-194374 R5-194376 R5-194400 R5-194463	0348 0351 0353 0359 0360 0361 0362 0366 0367 0368	- - -	F F F F F F F F F F F F F F F F F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC Text Update for 7.3B.3 Text Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band EN-DC within FR1 Text Update for 7.3B.2.2 Ref sensitivity for Intra-band Non-Contiguous EN-DC Text Update for 7.3B.2.0 Min Requirements of Ref sensitivity for EN-DC Update to Carrier Leakage and In-band Emissions for intra-band contiguous EN-DC Update to 6.2.3 A-MPR FR2 NSA	15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0
2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06 2019-06	RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84 RAN#84	R5-194129 R5-194164 R5-194166 R5-194317 R5-194318 R5-194319 R5-194320 R5-194374 R5-194375 R5-194376	0348 0351 0353 0359 0360 0361 0362 0366 0367 0368	- - -	F F F F F F	Addition ACLR intraband non-contiguous EN-DC in TS 38.521-3 Update of test case 6.2B.3.1 UE A-MPR for Intra-band contiguous EN-DC Update of test case 6.2B.3.3 UE A-MPR for Inter-Band EN-DC within FR1 Text Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1 Text Update for 7.3B.2.1 Ref sensitivity for Intra-band Contiguous EN-DC Text Update for 6.5B.4 Additional Spurious Emissions for EN-DC Text Update for 7.3B.3 Text Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band EN-DC within FR1 Text Update for 7.3B.2.2 Ref sensitivity for Intra-band Non-Contiguous EN-DC Text Update for 7.3B.2.0 Min Requirements of Ref sensitivity for EN-DC Update to Carrier Leakage and In-band Emissions for intra-band contiguous EN-DC	15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0 15.3.0

2019-06	RAN#84	R5-194706	0382	1-	F	TS 38.521-3 clause 5 updates to align with core specification	15.3.0
2019-06	RAN#84	R5-194707	0383	-	F	TS 38.521-3 updates across clause 6 test cases	15.3.0
2019-06	RAN#84	R5-194708	0384	-	F	TS 38.521-3 updates across clause 7 test cases	15.3.0
2019-06	RAN#84	R5-194725	0388	-	F	Update to clarify number of LTE CCs config for anchor agnostic EN- DC RF tests	15.3.0
2019-06	RAN#84	R5-194934	0334	1	F	Update of NSA FR1 RF 6.2B.1.1 MOP	15.3.0
2019-06	RAN#84	R5-194935	0335	1	F	Update of NSA FR1 RF 6.2B.1.2 MOP	15.3.0
2019-06	RAN#84	R5-194936	0337	1	F	Update of NSA FR1 RF 7.4B.1	15.3.0
2019-06	RAN#84	R5-194937	0338	1	F	Update of NSA FR1 RF 7.4B.2	15.3.0
2019-06	RAN#84	R5-194938	0298	1	F	Adding test case 6.5A.2.2, Additional Spectrum emissions mask for CA without EN-DC	15.3.0
2019-06	RAN#84	R5-194941	0350	1	F	Introduction of New test case 6.4B.2.3.4 EVM Equalizer Flatness for inter-band EN-DC within FR1	15.3.0
2019-06	RAN#84	R5-194942	0373	1	F	Update of test case 6.2A.2.1, UE maximum output power reduction for inter-band NR CA between FR1 and FR2 without EN-DC	15.3.0
2019-06	RAN#84	R5-194943	0374	1	F	Update of 6.2B.3.1 A-MPR Intra-band contiguous for NS_35	15.3.0
2019-06	RAN#84	R5-194944	0375	1	F	Update of 6.2B.3.2 A-MPR for Intra-band non-contiguous with additional test frequencies	15.3.0
2019-06	RAN#84	R5-194945	0376	1	F	Correction of editorial note in 6.5B.2.1.2	15.3.0
2019-06	RAN#84	R5-194946	0377	1	F	Update to 6.2.3 A-MPR FR1 and FR2	15.3.0
2019-06	RAN#84	R5-194947	0389		-	Updates to E-UTRA, FR1,FR2 IW tests in line with agreed way forward	15.3.0
2019-06	RAN#84	R5-194948	0369	1	F	Addition of msg content in TC 6.3B.4.1	15.3.0
2019-06	RAN#84 RAN#84	R5-194949 R5-194950	0370 0371	1	F	Addition of msg content in TC 6.3B.4.2	15.3.0 15.3.0
2019-06 2019-06	RAN#84 RAN#84	R5-194950 R5-194951	03/1	1	F	Addition of msg content in TC 6.3B.4.3 Update of TC 7.5B.0 ACS for EN-DC	15.3.0
2019-06	RAN#84	R5-194951	0310	1	F	Introduction of NSA FR2 7.6B.2.5	15.3.0
2019-06	RAN#84	R5-194953	0323	1	F	Update of NSA FR1 7.6B.2.1	15.3.0
2019-06	RAN#84	R5-194954	0363	1	F	Updated to EN-DC band and TIB information	15.3.0
2019-06	RAN#84	R5-194955	0385	1	F	TS 38.521-3 clause 5 updates to align with core specification	15.3.0
2019-06	RAN#84	R5-194975	0315	1	F	Introduction of TC 7.5B.4.2 ACS for inter-band FR2 3CC	15.3.0
2019-06	RAN#84	R5-195046	0356	1	F	Update to Wideband Intermodulation for EN-DC in FR1- 2CCs	15.3.0
2019-06	RAN#84	R5-195047	0379	1	F	Update to 6.2.3 A-MPR FR1 and FR2 NSA	15.3.0
2019-06	RAN#84	R5-195049	0357	1	F	Correction to 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band within FR1	15.3.0
2019-06	RAN#84	R5-195050	0358	1	F	Introducing Wideband Intermodulation for EN-DC including FR1 - 3 CCs	15.3.0
2019-06	RAN#84	R5-195051	0391	<u> -</u>	F	Update of 6.5B.3.3.2 spurious co-existence inter-band EN-DC FR1	15.3.0
2019-06 2019-06	RAN#84 RAN#84	R5-195091 R5-195162	0392	1	F	Update of EN-DC ON_ON time mask test cases Introduction of New test case 6.4B.2.2.4 EVM Equalizer Flatness for	15.3.0 15.3.0
2019-06	RAN#84	R5-195163	0364	1	F	intra-band non-contiguous EN-DC Clean up FR2 Inter-band EN-DC test cases	15.3.0
2019-06	RAN#84	R5-195164	0390	1	F	Update to UE Maximum Output Power for Inter-Band EN-DC within	15.3.0
		R5-195165	0325		· F	FR1 Update of NSA FR1 7.6B.3.0	15.3.0
2019-06	RAN#84	R5-195165	0325	1	F	TS 38.521-3 updates across clause 6 test cases	15.3.0
2019-06	RAN#84	R5-195411	0387	1	F	TS 38.521-3 updates across clause 6 test cases	15.3.0
2019-06	RAN#84	R5-195419	0393	1	F	EN-DC implementation of FR2 UL demod OTA tests using single pol Rx TE	
2019-06	RAN#84	R5-195436	0336	1	F	Update of NSA FR1 RF 6.2B.1.3 MOP	15.3.0
2019-06	RAN#84	R5-195437	0299	1	F	Updates of MU and TT in TS 38.521-3	15.3.0
2019-06	RAN#84	R5-195446	0394	1	F	Introduction of Tx test cases for FR2 NSA UL CA	15.3.0
2019-06	RAN#84	R5-193922	0340	-	F	Update of 6.2B.1.3 MOP inter-band adding Rel-16 EN-DC configurations	16.0.0
2019-06	RAN#84	R5-193923	0341	-	F	Update of 7.3B.2.3 REFSENS inter-band adding Rel-16 EN-DC configurations	16.0.0
2019-06	RAN#84	R5-194059	0345	-	F	Update of general sections adding Rel-16 EN-DC configurations, Editorial	16.0.0
2019-06	RAN#84	R5-195054	0342	1	F	Update of 6.5B.3.3.2 spurious co-existence inter-band adding Rel-16 EN-DC configurations	16.0.0
2019-09	RAN#85	R5-197441	0397	1	F	Correction of test case numbering for UL CA	16.1.0
2019-09	RAN#85	R5-197346	0398	1	F	Update of UE A_MPR intra band contiguous EN DC test case in 6.2B.3.1	16.1.0
2019-09	RAN#85	R5-197347	0399	1	F	Update of UE A_MPR intra band non contiguous EN DC test case in 6.2B.3.2	16.1.0
2040.00	RAN#85	R5-197348	0401	1	F	Addition of test case 6.5B.2.1.2 Additional Spectrum emissions mask for intra band contiguous EN DC	16.1.0
2019-09		1	4	-	-	Addition of the transport of the Control of the Con	16.1.0
2019-09	RAN#85	R5-197349	0402	1	F	Addition of test case 6.5B.2.2.2 Additional Spectrum emissions mask for intra hand non contiguous EN DC	10.1.0
	RAN#85 RAN#85	R5-197349 R5-197350	0402	1	F	for intra band non contiguous EN DC  Addition of test case 6.5B.2.3.2 Additional Spectrum emissions mask for Inter band EN DC within FR1	

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2019-09	RAN#85	R5-197351	0405	1	F F	Spurious test case updates	16.1.0
2019-09	RAN#85	R5-197331	0406	1		Correction to ACLR inter-band EN-DC FR1 test case	16.1.0
2019-09	RAN#85	R5-196160	0407	-	F	Clean up test cases 6.4B.2.2 Transmit Modulation Quality	16.1.0
2019-09	RAN#85	R5-196161	0408	-	F	Update to Annex F for Tx modulation quality test cases	16.1.0
2019-09	RAN#85	R5-196200	0409	-	F	Correction of uplink power setting for NSA transmitter test cases	16.1.0
2019-09	RAN#85	R5-197516	0410	1	F	Correction of uplink power setting for NSA receiver test cases	16.1.0
2019-09	RAN#85	R5-196241	0411	-	F	Correction to FR1 Transmit OFF Power	16.1.0
2019-09	RAN#85	R5-197646	0412	1	F	Correction to NR power control in FR1 Out-of-band blocking	16.1.0
2019-09	RAN#85	R5-197352	0414	1	F	Correction to FR1 PRACH time mask for EN-DC	16.1.0
2019-09	RAN#85	R5-197353	0415	1	F	Correction of NR uplink RB allocation for FR1 Inter-Band EN-DC	16.1.0
2010 00	10/11/1/00	10 107000	0410	١.	l'	MOP	10.1.0
2019-09	RAN#85	R5-196290	0416	-	F	Add Annex F.4 Uplink Power window explanation for interworking test cases	16.1.0
2019-09	RAN#85	R5-196296	0417	-	F	Addition of Clause 7.5A in TS 38.521-3	16.1.0
2019-09	RAN#85	R5-197549	0418	1	F	Update of 6.2B.1.1 MOP for Intra-band contiguous EN-DC	16.1.0
2019-09	RAN#85	R5-197550	0419	1	F	Update of 6.2B.1.2 MOP for Intra-band non-contiguous EN-DC	16.1.0
2019-09	RAN#85	R5-196446	0421	Ė	F	Editorial update of general sections adding Rel-16 EN-DC	16.1.0
2013-03	IXAIN#00	13-190440	0421	_	'	configurations	10.1.0
2019-09	RAN#85	R5-196449	0422	l	F	Correction to description of Table 4.5.1-2	16.1.0
2019-09	RAN#85	R5-197354	0423	1	F	Update for 6.5B.3.1.2 Spurious emission band UE co-existence for	16.1.0
2019-09	RAN#85	R5-197553	0423	1	F	intra-band contiguous EN-DC  Update for 6.5B.3.3.2 Spurious emission band UE co-existence for	16.1.0
						Inter-band within FR1	
2019-09	RAN#85	R5-197333	0425	1	F	Update for 7.3B.2.0 Minimum Conformance Requirements of Reference sensitivity for EN-DC	16.1.0
2010.00	RAN#85	R5-197636	0426	2	F	Update for 7.3B.2.3 Ref sensitivity for Inter-band EN-DC within FR1	16.1.0
2019-09			0426	2			
2019-09	RAN#85	R5-197359	0427	1	F	Update for 7.3B.2.1 Reference sensitivity for Intra-band Contiguous EN-DC	16.1.0
0040.00	DANUGE	DE 40700 1	0.400	4	_		40.4.0
2019-09	RAN#85	R5-197334	0428	1	F	Update for 7.3B.3.2	16.1.0
2019-09	RAN#85	R5-197335	0429	1	F	Update for 7.3B.3	16.1.0
2019-09	RAN#85	R5-197337	0430	1	F	Update for 7.3B.3.3	16.1.0
2019-09	RAN#85	R5-197338	0431	1	F	Updated to EN-DC band information	16.1.0
2019-09	RAN#85	R5-197336	0433	1	F	Update of TCs in 7.6B and 7.7B	16.1.0
2019-09	RAN#85	R5-197554	0434	1	F	Updates to 6.2B.2.1, UE Maximum Output Power reduction for	16.1.0
2019-09	RAN#85	R5-197555	0435	1	F	Intra-Band Contiguous EN-DC  Update of TC 6.3B.1.1 Minimum Output Power for intra-band	16.1.0
2019-09	RAN#85	R5-197556	0436	1	F	contiguous EN-DC  Update of TC 6.3B.1.2 Minimum output power for intra-band non-	16.1.0
2019-09	RAN#85	R5-197340	0437	1	F	contiguous EN-DC  Update of TC 6.3B.2.1 Transmit OFF Power for intra-band	16.1.0
2019-09	RAN#85	R5-197341	0438	1	F	contiguous EN-DC Update of TC 6.3B.2.2 Transmit OFF Power for intra-band non-	16.1.0
						contiguous EN-DC	
2019-09	RAN#85	R5-197342	0440	1	F	Update of TC 6.4B.1.1 Frequency error for Intra-band contiguous EN-DC	16.1.0
2019-09	RAN#85	R5-197557	0441		F	Update of TC 6.4B.1.2 Frequency error for Intra-band non- contiguous EN-DC	16.1.0
2019-09	RAN#85	R5-197343	0442	1	F	Update of TC 6.4B.1.3 Frequency error for Inter-band EN-DC within FR1	16.1.0
2019-09	RAN#85	R5-197647	0443	1	F	Correction to 7.8B.2.6 Wideband Intermodulation for EN-DC including FR1 - 3 CCs	16.1.0
2019-09	RAN#85	R5-197562	0448	1	F	Corrections to Reference sensitivity for EN-DC	16.1.0
2019-09	RAN#85	R5-196842	0449	-	F	Editorial corrections to Additional Spurious Emission test case	16.1.0
2019-09	RAN#85	R5-197360	0450	1	F	Correction to test case 7.4B.3	16.1.0
2019-09	RAN#85	R5-197558	0452	1	F.	Correction to EN-DC Spurious Emissions	16.1.0
2019-09	RAN#85	R5-197345	0456	1	F	Update OBW EN-DC FR2 test case	16.1.0
2019-09	RAN#85	R5-197345	0456	1	F	TS 38.521-3 Section 5 updates to align with core specification	16.1.0
2019-09	CO#NIMA	170-191008	0457	['	[	(Covered by CR0431R1)	10.1.0
2010.00	D \ NI#OF	DE 107540	0450	1	F		16 1 0
2019-09	RAN#85	R5-197542	0458	_		TS 38.521-3 updates across section 6 test cases	16.1.0
2019-09	RAN#85	R5-197563	0459	1	F	TS 38.521-3 updates across section 7 test cases	16.1.0
2019-09	RAN#85	R5-197559	0460	1	F	Updates to 6.2B.2.4, UE Maximum Output Power reduction for Inter-Band EN-DC including FR2	16.1.0
2019-09	RAN#85	R5-196946	0461	<u> -</u>	F	Corrections on UE maximum output power for DC in 38.521-3	16.1.0
2019-09	RAN#85	R5-197332	0462	1	F	Corrections on Minimum conformance requirements of A-MPR in 38.521-3	16.1.0
2019-09	RAN#85	R5-196948	0463	-	F	Corrections on clause 5 in 38.521-3	16.1.0
2019-09	RAN#85	R5-196949	0464	-	F	Corrections on clause 2-4 in 38.521-3	16.1.0
2019-09	RAN#85	R5-197633	0465	-	F	Removing test points for CP-OFDM PI/2 BPSK in test case 6.5B.2.1.1	16.1.0
2019-12	RAN#86	R5-197940	0472	-	F	Addition of 6.2B.1.5 MOP for Inter-Band EN-DC including FR1 and FR2	16.2.0

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2019-12	RAN#86	R5-197944	0475	-	F	Update of 6.2B.4.1.4 configured transmitted power for Inter-Band EN-DC including FR2	16.2.0
2019-12	RAN#86	R5-197945	0476	-	F	Update of 6.2B.4.1.5 configured transmitted power for Inter-Band EN-DC including FR1 and FR2	16.2.0
2019-12	RAN#86	R5-197946	0477	-	F	Addition of 7.4A Maximum Input Level for FR1-FR2 CA	16.2.0
2019-12	RAN#86	R5-197949	0480	-	F	Addition of 7.4B.5 Maximum Input Level for inter-band EN-DC including FR1 and FR2	16.2.0
2019-12	RAN#86	R5-198045	0485	-	F	Update of TC 7.5B.0 ACS for EN-DC	16.2.0
2019-12	RAN#86	R5-198046	0486	-	F	Update of TC 7.5B.1 ACS for intra-band contiguous EN-DC 2CCs	16.2.0
2019-12	RAN#86	R5-198172	0488	-	F	Updating incorrect note in test procedure	16.2.0
2019-12	RAN#86	R5-198280	0490	-	F	Introduction of New TC 6.4B.2.1.4 EVM Equalizer Flatness for intraband contiguous EN-DC	16.2.0
2019-12	RAN#86	R5-198403	0501	-	F	Correction to TC 6.4B.1.3 test description	16.2.0
2019-12	RAN#86	R5-198404	0502	-	F	Correction to Additional Spurious Emissions for Inter-band EN-DC within FR1	16.2.0
2019-12	RAN#86	R5-198406	0504	-	F	Correction to Spurious emission band UE co-existence for Interband within FR1	16.2.0
2019-12	RAN#86	R5-198537	0509	-	F	Updates to 6.2B.3.1, UE A-MPR for Intra-band Contig EN-DC	16.2.0
2019-12	RAN#86	R5-198538	0510	-	F	Updates to 6.2B.3.2, UE A-MPR for Intra-band Non-Contig EN-DC	16.2.0
2019-12	RAN#86	R5-198539	0511	-	F	Updates to 6.5B.2.1.2, Additional spectrum emission mask for intraband Contig EN-DC	16.2.0
2019-12	RAN#86	R5-198559	0512	-	F	Updated to EN-DC band information Rel-16	16.2.0
2019-12	RAN#86	R5-198637	0513	-	F	Updated to EN-DC General clause and band information Rel-15	16.2.0
2019-12	RAN#86	R5-198685	0515	-	F	Update single allowed info and MPR test description to EN-DC configuration in 38.521-3	16.2.0
2019-12	RAN#86	R5-198686	0516	-	F	Corrections on delta TIB for EN-DC configurations in 38.521-3	16.2.0
2019-12	RAN#86	R5-198722	0519	-	F	Update for 7.3B.1 General	16.2.0
2019-12	RAN#86	R5-198734	0523	-	F	Update for 6.5B.3.3.1 General spurious emissions for Inter-band ENDC within FR1	16.2.0
2019-12	RAN#86	R5-198735	0524	-	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band within FR1	16.2.0
2019-12	RAN#86	R5-199088	0466	1	F	Updates of MU and TT in TS 38.521-3	16.2.0
2019-12	RAN#86	R5-199342	0483	1	F	Updates to test case 6.2B.2.1, UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC	16.2.0
2019-12	RAN#86	R5-199343	0487	1	F	Editorial correction of test description in TC 6.4B.2.3.3	16.2.0
2019-12	RAN#86	R5-199344	0478	1	F	Addition of 7.4B.3 Maximum Input Level for inter-band EN-DC within FR1	16.2.0
2019-12	RAN#86	R5-199345	0491	1	F	Update of minimum conformance requirements of 7.6B.3 and editorial correction in 7.6B and 7.7B	16.2.0
2019-12	RAN#86	R5-199346	0492	1	F	Addition of 7.6A Blocking Characteristics for CA	16.2.0
2019-12	RAN#86	R5-199347	0493	1	F	Addition of 7.6B.2.3_1 Inband blocking for EN-DC within FR1 (>2 CCs)	16.2.0
2019-12	RAN#86	R5-199348	0495	1	F	Addition of 7.6B.4.3_1 Narrow band blocking for EN-DC within FR1 (>2 CCs)	16.2.0
2019-12	RAN#86	R5-199349	0468	1	F	Add Uplink Power window explanation when centred on a target	16.2.0
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2019-12	RAN#86	R5-199350	0489	1	F	Correction and addition of uplink power measurement MUs for NSA FR1 TCs	16.2.0
2019-12	RAN#86	R5-199351	0508	1	F	Addition of MU and TT for NSA 7.6B.2.3_1, 7.6B.2.4, 7.6B.2.4_1 and 7.6B.4.3_1 TCs in F.1.3 and F.3.3	16.2.0
2019-12	RAN#86	R5-199352	0529	1	F	TS 38.521-3 Section 1-5 and Annex updates to align with core specification	16.2.0
2019-12	RAN#86	R5-199377	0471	1	F	Update of 6.2B.1.4 MOP for Inter-Band EN-DC including FR2	16.2.0
2019-12	RAN#86	R5-199378	0479	1	F	Addition of 7.4B.4 Maximum Input Level for inter-band EN-DC including FR2	16.2.0
2019-12	RAN#86	R5-199413	0482	1	F	Addition of 2A-7A-7A-66A_n66A	16.2.0
2019-12	RAN#86	R5-199498	0500	1	F	Correction to minimum output power for intra-band EN-DC	16.2.0
2019-12	RAN#86	R5-199506	0496	1	F	Removal of 7.7A Spurious Response for CA	16.2.0
2019-12	RAN#86	R5-199508	0484	1	F	Updates to test case 6.2B.2.2, UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC	16.2.0
2019-12	RAN#86	R5-199514	0469	1	F	Update of 6.2B.1.1 MOP for Intra-Band contiguous EN-DC	16.2.0
2019-12	RAN#86	R5-199518	0467	1	F	Updates of test procedure for MOP and co-existence tests	16.2.0
2019-12	RAN#86	R5-199519	0517	1	F	Update for 6.5B.3.1.1 General spurious emissions for intra-band contiguous EN-DC	16.2.0
2019-12	RAN#86	R5-199520	0518	1	F	Update for 6.5B.3.2.1 General spurious emissions for Intra-band non-contiguous EN-DC	16.2.0
2019-12	RAN#86	R5-199521	0527	1	F	Update for Additional Spurious Emissions for Intra-band contiguous EN-DC	16.2.0
2019-12	RAN#86	R5-199522	0530	1	F	TS 38.521-3 updates across section 6 test cases	16.2.0
2019-12	RAN#86	R5-199523	0526	1	F	Update for 7.3B.2.0 Minimum Conformance Requirements of Reference sensitivity for EN-DC	16.2.0
2019-12	RAN#86	R5-199524	0531	1	F	TS 38.521-3 updates across section 7 test cases	16.2.0
2019-12	RAN#86	R5-199543	0520	1	F	Correction of E-UTRA Mid channel bandwidth	16.2.0
2019-12	RAN#86	R5-199546	0498	1	F	Corrections to DC Config and dual UL interferer	16.2.0
2019-12	RAN#86	R5-199547	0499	1	F	Corrections to EN-DC and NE-DC Configurations	16.2.0
2019-12	RAN#86	R5-199566	0494	1	F	Addition of 7.6B.2.4_1 Inband blocking for inter-band EN-DC including FR2 (>2 CCs)	16.2.0
2019-12	RAN#86	R5-199567	0522	1	F	Update to test case 7.3B.2.3	16.2.0
2019-12	RAN#86	R5-199568	0525	1	F	Update for 7.3B.2.3 Reference sensitivity for Inter-band EN-DC within FR1	16.2.0
2019-12	RAN#86	R5-199569	0528	1	F	Update 4.5 Applicability and test coverage rules	16.2.0
2020-03	RAN#87	R5-200351	0538	-	F	Updated to EN-DC band information Rel-16	16.3.0
2020-03	RAN#87	R5-200446	0549	-	F	Correction to FR1 EN-DC Spurious Test Case	16.3.0
2020-03	RAN#87	R5-200448	0551	-	F	Correction to LTE specialSubframePatterns in Maximum Output Power Test Case	16.3.0
2020-03	RAN#87	R5-200449	0552	-	F	Correction to tdm-PatternConfig in FR1 EN-DC Maximum Output Power Test Case	16.3.0
2020-03	RAN#87	R5-200599	0553	-	F	Update of 6.2B.1.3 on inter-band EN-DC MOP in 38.521-3	16.3.0
2020-03	RAN#87	R5-200651	0558	-	F	Updates to 6.2B.2.1, UE Maximum Output Power reduction for Intra- Band Contiguous EN-DC	16.3.0
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2020-03	RAN#87	R5-200653	0559	I_	F	Updates to 6.2B.2.2, UE Maximum Output Power reduction for Intra-	16.3.0
2020-03	IXAN#OI	113-200033	0333		ľ	Band Non-Contiguous EN-DC	10.5.0
2020-03	RAN#87	R5-200657	0560	-	F	Updates to 6.2B.2.3 and 6.2B.3.3	16.3.0
2020-03	RAN#87	R5-200668	0561	-	F	Correction of reference clause for 7.3B.2.3 Reference Sensitivity Test Procedure	16.3.0
2020-03	RAN#87	R5-200670	0563	-	F	Update reference in Test Requirement section of 6.5B.4.3.5	16.3.0
2020-03	RAN#87	R5-200728	0568	-	F	Correction of test cases in 7.6B.2 Inband blocking for DC	16.3.0
2020-03	RAN#87	R5-200730	0569	-	F	Correction to reference table number for TC 6.2B.2.3 and TC 6.2B.2.4	16.3.0
2020-03	RAN#87	R5-200731	0570	-	F	Correction of test cases in 7.6B.3 Out-of-band blocking for DC	16.3.0
2020-03	RAN#87	R5-200732	0571	-	F	Correction of test cases in 7.6B.4 Narrow band blocking for DC	16.3.0
2020-03	RAN#87	R5-200733	0572	-	F	Correction of test cases in 7.7B Spurious response for DC	16.3.0
2020-03	RAN#87	R5-200776	0576	-	F	TS 38.521-3 Section 1-5 and Annex updates to align with core specification	16.3.0
2020-03	RAN#87	R5-200801	0577	-	F	Update of Non-Standalone FR2 A-MPR test case	16.3.0
2020-03	RAN#87	R5-200814	0579	-	F	Correction to Test Case 6.5B.3.3.2	16.3.0
2020-03	RAN#87	R5-200913	0534	1	F	Update of Clause 4 in TS 38.521-3	16.3.0
2020-03	RAN#87	R5-200925	0541	1	F	Adding common uplink configuration of E-UTRA carrier for EN-DC testing	16.3.0
2020-03	RAN#87	R5-200926	0543	1	F	Updating configured output power for inter-band EN-DC	16.3.0
2020-03	RAN#87	R5-200927	0545	1	F	Updating configured output power for intra-band contiguous EN-DC	16.3.0
2020-03	RAN#87	R5-200928	0547	1	F	Updating configured output power for intra-band non-contiguous EN-DC	16.3.0
2020-03	RAN#87	R5-200929	0567	1	F	Core spec alignment of EN-DC MOP and configured output power	16.3.0
2020-03	RAN#87	R5-200963	0536	1	F	Update of TC 7.5B.2 ACS for intra-band non-contiguous EN-DC 2CCs	16.3.0
2020-03	RAN#87	R5-200964	0535	1	F	Update of TC 7.5B.1 ACS for intra-band contiguous EN-DC 2CCs	16.3.0
2020-03	RAN#87	R5-200982	0557	1	F	Updates to 6.5B.2.1.3, Adjacent channel leakage ratio for intra-band contiguous EN-DC	16.3.0
2020-03	RAN#87	R5-200983	0575	1	F	Corrections to 6.2B.3.1, UE A_MPR for Intra-band Contig EN_DC	16.3.0
2020-03	RAN#87	R5-200984	0533	1	F	Addition of Clause 7.5B.0.3a	16.3.0
2020-03	RAN#87	R5-200995	0578	1	F	Correction of Reference Sensitivity Test Case 7.3B.2.3	16.3.0
2020-03	RAN#87	R5-201019	0555	1	F	Update of general sections on EN-DC configurations in 38.521-3	16.3.0
2020-03	RAN#87	R5-201055	0542	1	F	Updating MOP for inter-band EN-DC	16.3.0
2020-03	RAN#87	R5-201066	0564	1	F	Add TX test for Rel16_DC_2_n41 and 66_n41	16.3.0
2020-03	RAN#87	R5-201067	0565	1	F	Add RX test for Rel16_DC_2_n41 and 66_n41	16.3.0
2020-03	RAN#87	R5-201165	0574	1	F	Correction of REFSENS for inter-band EN-DC	16.3.0
2020-03	RAN#87	R5-201187	0548	1	F	Addition of a few R16 EN-DC configurations	16.3.0
2020-03	RAN#87	R5-201193	0532	1	F	Updates of MU and TT in TS 38.521-3	16.3.0
2020-03	RAN#87	R5-201198	0556	1	F	Correcting usage of modifiedMPR-Behaviour	16.3.0
2020-06	RAN#88	R5-201721	0587	-	F	Update Annex F.4 Uplink Power window explanation	16.4.0
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2020-06         RAN#88         R5-201855         0594         -         F         Update of 6.2B.1.3 MOP for inter-band EN-DC           2020-06         RAN#88         R5-201859         0596         -         F         Updating A-SE to align test points with A-MPR           2020-06         RAN#88         R5-201870         0598         -         F         Update of test configuration in 6.5B.3.3.2 for UE co-existence           2020-06         RAN#88         R5-201942         0605         -         F         Updated to EN-DC Rel-16 band information in clause 5           2020-06         RAN#88         R5-202032         0611         -         F         Correction of Initial condition for OOBB intra-band contiguous DC 2 CCs in FR1 in TC 7.6B.3.1 R15           2020-06         RAN#88         R5-202293         0626         -         F         Correction to 7.3B.2.3 test configuration for EN-DC 26_n79           2020-06         RAN#88         R5-202294         0627         -         F         Correction to Frequency error for Intra-band contiguous EN-DC           2020-06         RAN#88         R5-202393         0630         -         F         Addition of Intra-band non-contiguous EN-DC combination           2020-06         RAN#88         R5-202421         0633         -         F         Update Uplink power control wi	16.4.0 e 16.4.0
2020-06         RAN#88         R5-201870         0598         -         F         Update of test configuration in 6.5B.3.3.2 for UE co-existence           2020-06         RAN#88         R5-201942         0605         -         F         Updated to EN-DC Rel-16 band information in clause 5           2020-06         RAN#88         R5-202032         0611         -         F         Correction of Initial condition for OOBB intra-band contiguous DC 2 CCs in FR1 in TC 7.6B.3.1 R15           2020-06         RAN#88         R5-202293         0626         -         F         Correction to 7.3B.2.3 test configuration for EN-DC 26_n79           2020-06         RAN#88         R5-202294         0627         -         F         Correction to Frequency error for Intra-band contiguous EN-DC 2020-06           RAN#88         R5-202295         0628         -         F         Correction to PRACH configuration for intra-band EN-DC test 2020-06           RAN#88         R5-202393         0630         -         F         Addition of Intra-band non-contiguous EN-DC combination           2020-06         RAN#88         R5-202421         0633         -         F         Update Uplink power control window size for NSA TX TCs           2020-06         RAN#88         R5-202429         0637         -         F         Update for 7.3A.3 for CA without EN-DC<	
2020-06         RAN#88         R5-201942         0605         -         F         Updated to EN-DC Rel-16 band information in clause 5           2020-06         RAN#88         R5-202032         0611         -         F         Correction of Initial condition for OOBB intra-band contiguous DC 2 CCs in FR1 in TC 7.6B.3.1 R15           2020-06         RAN#88         R5-202293         0626         -         F         Correction to 7.3B.2.3 test configuration for EN-DC 26_n79           2020-06         RAN#88         R5-202294         0627         -         F         Correction to Frequency error for Intra-band contiguous EN-DC 2020-06           RAN#88         R5-202295         0628         -         F         Correction to PRACH configuration for intra-band EN-DC test           2020-06         RAN#88         R5-202393         0630         -         F         Addition of Intra-band non-contiguous EN-DC combination           2020-06         RAN#88         R5-202421         0633         -         F         Update Uplink power control window size for NSA TX TCs           2020-06         RAN#88         R5-202429         0637         -         F         Update for 7.3A.3 for CA without EN-DC           2020-06         RAN#88         R5-202475         0638         -         F         TS 38.521-3 Section 1-5 and Annex updates to a	
2020-06 RAN#88 R5-202293 0626 - F Correction to 7.3B.2.3 test configuration for EN-DC 26_n79 2020-06 RAN#88 R5-202294 0627 - F Correction to Frequency error for Intra-band contiguous EN-DC 2020-06 RAN#88 R5-202295 0628 - F Correction to PRACH configuration for intra-band EN-DC test 2020-06 RAN#88 R5-202393 0630 - F Addition of Intra-band non-contiguous EN-DC combination 2020-06 RAN#88 R5-202421 0633 - F Update Uplink power control window size for NSA TX TCs 2020-06 RAN#88 R5-202429 0637 - F Update for 7.3A.3 for CA without EN-DC 2020-06 RAN#88 R5-202429 0637 - F TS 38.521-3 Section 1-5 and Annex updates to align with corspecification	
DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CCs in FR1 in TC 7.6B.3.1 R15  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS in FR1 in TC 7.6B.2.1 R1  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS in FR1 in TC 7.8B.2.1 R1  DC 2 CS	
2020-06         RAN#88         R5-202294         0627         -         F         Correction to Frequency error for Intra-band contiguous EN-D           2020-06         RAN#88         R5-202295         0628         -         F         Correction to PRACH configuration for intra-band EN-DC test           2020-06         RAN#88         R5-202393         0630         -         F         Addition of Intra-band non-contiguous EN-DC combination           2020-06         RAN#88         R5-202421         0633         -         F         Update Uplink power control window size for NSA TX TCs           2020-06         RAN#88         R5-202429         0637         -         F         Update for 7.3A.3 for CA without EN-DC           2020-06         RAN#88         R5-202475         0638         -         F         TS 38.521-3 Section 1-5 and Annex updates to align with cor specification	S EN- 16.4.0
2020-06         RAN#88         R5-202295         0628         -         F         Correction to PRACH configuration for intra-band EN-DC test           2020-06         RAN#88         R5-202393         0630         -         F         Addition of Intra-band non-contiguous EN-DC combination           2020-06         RAN#88         R5-202421         0633         -         F         Update Uplink power control window size for NSA TX TCs           2020-06         RAN#88         R5-202429         0637         -         F         Update for 7.3A.3 for CA without EN-DC           2020-06         RAN#88         R5-202475         0638         -         F         TS 38.521-3 Section 1-5 and Annex updates to align with cor specification	16.4.0
2020-06         RAN#88         R5-202393         0630         -         F         Addition of Intra-band non-contiguous EN-DC combination           2020-06         RAN#88         R5-202421         0633         -         F         Update Uplink power control window size for NSA TX TCs           2020-06         RAN#88         R5-202429         0637         -         F         Update for 7.3A.3 for CA without EN-DC           2020-06         RAN#88         R5-202475         0638         -         F         TS 38.521-3 Section 1-5 and Annex updates to align with cor specification	DC 16.4.0
2020-06         RAN#88         R5-202421         0633         -         F         Update Uplink power control window size for NSA TX TCs           2020-06         RAN#88         R5-202429         0637         -         F         Update for 7.3A.3 for CA without EN-DC           2020-06         RAN#88         R5-202475         0638         -         F         TS 38.521-3 Section 1-5 and Annex updates to align with cor specification	ts 16.4.0
2020-06         RAN#88         R5-202429         0637         -         F         Update for 7.3A.3 for CA without EN-DC           2020-06         RAN#88         R5-202475         0638         -         F         TS 38.521-3 Section 1-5 and Annex updates to align with cor specification	16.4.0
2020-06 RAN#88 R5-202475 0638 - F TS 38.521-3 Section 1-5 and Annex updates to align with cor specification	16.4.0
specification	16.4.0
2020-06 RAN#88 R5-202725 0585 1 F Correction on the channel bandwidth to use in section 6.5B.3	re 16.4.0
	16.4.0
2020-06 RAN#88 R5-202726 0586 1 F Setting p-MaxEUTRA to avoid limiting NR power in section 6.	.5B 16.4.0
2020-06 RAN#88 R5-202727 0590 1 F Correction to TC 6.2B.4.1.3	16.4.0
2020-06 RAN#88 R5-202728 0595 1 F Updating 6.2B.4.x configured output power test cases for FR DC	1 EN- 16.4.0
2020-06 RAN#88 R5-202729 0614 1 F correction 6.3B.1.3 to include anchor agnostic approach appli	ies 16.4.0
2020-06 RAN#88 R5-202730 0616 1 F Clarification of disabling Tx diversity for FR2 UE for NSA FR2	2 testing 16.4.0
2020-06 RAN#88 R5-202731 0618 1 F Updation of 6.5B.3.3.1	16.4.0
2020-06 RAN#88 R5-202732 0639 1 F Addition of UL-MIMO EN-DC tests in Clause 6	16.4.0
2020-06 RAN#88 R5-202733 0641 1 F Common updates across tests in Clause 6	16.4.0
2020-06 RAN#88 R5-202734 0640 1 F Addition of UL-MIMO EN-DC tests in Clause 7	16.4.0
2020-06 RAN#88 R5-202735 0642 1 F Common updates across tests in Clause 7	16.4.0
2020-06 RAN#88 R5-202782 0635 1 F Update Rx TC for 5 Rel_16_DC_combos	16.4.0
2020-06 RAN#88 R5-202809 0632 1 F Receiver characteristics testing update to 38.521-3	16.4.0
2020-06 RAN#88 R5-202829 0601 1 F Addition of 6.2B.1.5D UE Maximum Output Power for Inter-Ba EN-DC including both FR1 and FR2 for UL-MIMO	and 16.4.0
2020-06 RAN#88 R5-202830 0602 1 F Addition of 6.2B.5.1.1 Configured Output Power Level for Inte NR-DC between FR1 and FR2	er-band 16.4.0
2020-06 RAN#88 R5-202901 0631 1 F Power control for EN-DC	16.4.0
2020-06 RAN#88 R5-202902 0588 1 F Updated structure for RefSens for EN-DC within FR1 more th 2CCs	nan 16.4.0
2020-06 RAN#88 R5-202903 0597 1 F Updating REFSENS for 1A_n78A and 3A_n78A	16.4.0
2020-06 RAN#88 R5-202904 0613 1 F Introduction of Rx test cases for EN-DC within FR1 3CCs	16.4.0
2020-06 RAN#88 R5-202905 0629 1 F Update to NSA FR2 Receiver Spurious Emission Test Case	16.4.0
2020-06 RAN#88 R5-202906 0636 1 F Add 7.3B.2.3_1.2 Reference sensitivity for EN-DC within FR1 CCs	Iv - 4 16.4.0
2020-06 RAN#88 R5-202907 0624 1 F Updates of FR2 MU and TT in TS 38.521-3	16.4.0

2020-06	RAN#88	R5-202925	0634	1	F	Update Tx TC for 5 Rel_16_DC_combos	16.4.0
2020-06	RAN#88	R5-202934	0604	1	F	Addition of TDD-TDD PC2 inter-band EN-DC	16.4.0
2020-06	RAN#88	R5-202945	0592	1	F	Updating 6.2B.1.1 MOP for intra-band contiguous EN-DC	16.4.0
2020-06	RAN#88	R5-202946	0593	1	F	Updating 6.2B.1.2 MOP for intra-band non-contiguous EN-DC	16.4.0
2020-06	RAN#88	R5-202947	0606	1	F	Updates to 6.2B.2.1, UE Maximum Output Power reduction for Intra- Band Contiguous EN-DC	16.4.0
2020-06	RAN#88	R5-202948	0607	1	F	Updates to 6.5B.2.1.1, Spectrum emissions mask for intra-band contiguous EN-DC	16.4.0
2020-06	RAN#88	R5-202949	0608	1	F	Updates to 6.5B.2.1.3, Adjacent channel leakage ratio for intra-band contiguous EN-DC	16.4.0
2020-06	RAN#88	R5-202959	0620	1	F	Updates of Tx test cases for EN-DC including FR2	16.4.0
2020-06	RAN#88	R5-202964	0622	1	F	Update to configured output power relaxation due to inter-band ENDC in 38.521-3	16.4.0
2020-06	RAN#88	R5-202965	0623	1	F	Update to REFSENS relaxation due to inter-band EN-DC in 38.521-3	16.4.0
2020-06	RAN#88	R5-202991	0609	1	F	Completion of TC 7.6B.3.3 OOBB Inter-band EN-DC 2CCs within FR1 R15	16.4.0
2020-06	RAN#88	R5-202992	0610	1	F	Completion of TC 7.7B.3 Spurious Response Inter-band EN-DC 2CCs within FR1 R15	16.4.0
2020-06	RAN#88	R5-202993	0612	1	F	Alignment of requirements in 7.6B and 7.7B with core spec for Intraband contiguous EN-DC in FR1 R15	16.4.0
2020-09	RAN#89	R5-203227	0644	-	F	Adding receiver requirements for Rel-16 inter-band EN-DC FR1 band combinations	16.5.0
2020-09	RAN#89	R5-203294	0645	-	F	Correction of MU definition for test case 6.5B.2.1.3	16.5.0
2020-09	RAN#89	R5-203295	0646	-	F	definition of MU and TT for test case 6.3B.4.3	16.5.0
2020-09	RAN#89	R5-203296	0647	-	F	definition of MU and TT for test case 6.5B.4.3	16.5.0
2020-09	RAN#89	R5-203297	0648	-	F	Definition of MU and TT for test case 7.3B.2.4	16.5.0
2020-09	RAN#89	R5-203492	0650	-	F	In-band Blocking FR2 MU updates in 38.521-3	16.5.0
2020-09	RAN#89	R5-203515	0651	-	F	Editorial correction of test case 6.5B.3.3.1	16.5.0
2020-09	RAN#89	R5-203637	0655	-	F	Introduction of additional Rel-16 EN-DC inter-band configurations to EN-DC MOP test case 6.2B.1.3	16.5.0
2020-09	RAN#89	R5-203753	0660	-	F	Update test procedure to 6.5B.3.3.1	16.5.0
2020-09	RAN#89	R5-203763	0661	-	F	Editorial correction of referenced clause (6.2.3) in test case 6.2B.2.1.2	16.5.0
2020-09	RAN#89	R5-203872	0668	=	F	Adding RRCConnectionReconfiguration Table for E-UTRA on FDD band and UE does not support dynamic power sharing in 6.5B.3.3.1 and 6.5B.3.3.2	16.5.0
2020-09	RAN#89	R5-203907	0669	-	F	Corrections on delta RIB due to Rel-16 EN-DC configurations	16.5.0
2020-09	RAN#89	R5-203941	0674	-	F	Addition of the test description to apply LTE agnostic approach in 7.4B.2 MIL	16.5.0
2020-09	RAN#89	R5-203960	0680	-	F	Correction to additional test points for spurious emission UE co- existence for a few Rel-15 inter-band EN-DC	16.5.0
2020-09	RAN#89	R5-203973	0684	-	F	Cleaning up of delta_TIB	16.5.0
2020-09	RAN#89	R5-204154	0693	-	F	Updated to Annex M for EN-DC Rel-16 configuration requirement	16.5.0
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2020-09	RAN#89	R5-204170	0697	-	F	Update for TC 7.5B.0 Minimum Conformance Requirements of ACS for DC	16.5.0
2020-09	RAN#89	R5-204176	0703	-	F	Update for TC 7.5B.4 ACS for inter-band EN-DC including FR2 2CCs	16.5.0
2020-09	RAN#89	R5-204177	0704	-	F	Update for TC 7.5B.4_1.1 ACS for inter-band EN-DC including FR2 3CCs	16.5.0
2020-09	RAN#89	R5-204178	0705	-	F	Update for TC 7.5B.4_1.2 ACS for inter-band EN-DC including FR2 4CCs	16.5.0
2020-09	RAN#89	R5-204179	0706	-	F	Update for TC 7.5B.4_1.3 ACS for inter-band EN-DC including FR2 5CCs	16.5.0
2020-09	RAN#89	R5-204180	0707	-	F	Update for TC 7.5B.4_1.4 ACS for inter-band EN-DC including FR2 6CCs	16.5.0
2020-09	RAN#89	R5-204198	0713	-	F	Update for 7.3B.2.0	16.5.0
2020-09	RAN#89	R5-204199	0714	-	F	Update for Spurious Emissions for intra-band EN-DC	16.5.0
2020-09	RAN#89	R5-204209	0717	-	F	Update Uplink power control window size for NSA RX TCs	16.5.0
2020-09	RAN#89	R5-204210	0718	-	F	Update Tx TC for Rel-16 DC combos	16.5.0
2020-09	RAN#89	R5-204250	0721	-	F	FR2 Minimum output power measurement period definition	16.5.0
2020-09	RAN#89	R5-204296	0726	-	F	Addition of test case 6.4B.2.4.1D	16.5.0
2020-09	RAN#89	R5-204297	0727	-	F	Addition of test case 6.4B.2.4.2D	16.5.0
2020-09	RAN#89	R5-204298	0728	-	F	Addition of test case 6.4B.2.4.3D	16.5.0
2020-09	RAN#89	R5-204299	0729	-	F	Addition of test case 6.4B.2.4.4D	16.5.0
2020-09	RAN#89	R5-204310	0730	-	F	Update of test case 6.2B.3.1 UE Additional Maximum Output Power reduction for Intra-band contiguous EN-DC	16.5.0
2020-09	RAN#89	R5-204313	0733	-	F	TS 38.521-3 Section 1-5 and Annex updates to align with core specification	16.5.0
2020-09	RAN#89	R5-204322	0736	-	F	Update for TC 7.5B.5 ACS for inter-band EN-DC including both FR1 and FR2	16.5.0
2020-09	RAN#89	R5-204349	0738	-	F	Editorial correction of Rx spurious emissions for FR1 EN-DC	16.5.0
2020-09	RAN#89	R5-204705	0739	-	F	Addition of test configuration for 71AA in 6.2B.1.1 MOP	16.5.0
2020-09	RAN#89	R5-204707	0740	-	F	Addition of MOP testing for DC_28A_n3A in 6.2B.1.3	16.5.0
2020-09	RAN#89	R5-204719	0715	1	F	Update for 7.3B.2.3_1.3 Reference sensitivity for EN-DC within FR1 5CCs	16.5.0
2020-09	RAN#89	R5-204724	0662	1	F	Updated to clause 6 for EN-DC Rel-16 band requirement	16.5.0
2020-09	RAN#89	R5-204766	0665	1	F	Spurious inter-band EN-DC FR2 UL MIMO test cases	16.5.0
2020-09	RAN#89	R5-204767	0673	1	F	Addition of test requirement of dropped NR carrier for non-DPS UE in 6.2B.4.x	16.5.0
2020-09	RAN#89	R5-204768	0678	1	F	Addition of additional test points for spurious emission UE co- existence for a few Rel-15 inter-band EN-DC	16.5.0
2020-09	RAN#89	R5-204769	0723	1	F	Editorial correction to EN-DC co-existence requirements	16.5.0
2020-09	RAN#89	R5-204770	0664	1	F	FR2 RefSens inter-band EN-DC UL MIMO test cases	16.5.0
2020-09	RAN#89	R5-204771	0670	1	F	Update of 7.3B.3.3 for REFSENS relaxation due to inter-band EN-DC within FR1	16.5.0
2020-09	RAN#89	R5-204772	0676	1	F	Addition of new test case 7.4B.5D MIL for inter-band EN-DC including FR1 and FR2 for UL-MIMO	16.5.0

2020-09	RAN#89	DE 004770	1	Ι.			
2020-09	IVAIN#09	R5-204773	0709	1	F	Addition of TC 7.5B.5D ACS for inter-band EN-DC including FR1 and FR2 for UL-MIMO	16.5.0
2020-09	RAN#89	R5-204809	0643	1	F	Adding transmitter requirements for Rel-16 inter-band EN-DC FR1 band combinations	16.5.0
2020-09	RAN#89	R5-204810	0654	1	F	Editorial correction to spurious emission test case 6.5B.3.3.2	16.5.0
2020-09	RAN#89	R5-204811	0656	1	F	Introduction of dTIBc for additional Rel-16 EN-DC inter-band configurations	16.5.0
2020-09	RAN#89	R5-204812	0657	1	F	Introduction of Rel-16 EN-DC configuration DC_40A_n1A to spurious emission test case 6.5B.3.3.2	16.5.0
2020-09	RAN#89	R5-204813	0658	1	F	Introduction of Rel-16 EN-DC configuration DC_40A_n78A to spurious emission test case 6.5B.3.3.2	16.5.0
2020-09	RAN#89	R5-204814	0679	1	F	Addition of additional test points for spurious emission UE co- existence for a few Rel-16 inter-band EN-DC	16.5.0
2020-09	RAN#89	R5-204815	0694	1	F	Updated to clause 6 for EN-DC Rel-16 configuration test requirement	16.5.0
2020-09	RAN#89	R5-204816	0692	1	F	Updated to EN-DC Rel-16 Configuration information in clause 5	16.5.0
2020-09	RAN#89	R5-204840	0696	1	F	Updated to EN-DC general clauses for NRSL eV2X	16.5.0
2020-09	RAN#89	R5-204866	0689	1	F	CR to update MU and TT in 38.521-3	16.5.0
2020-09	RAN#89	R5-204867	0716	1	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence	16.5.0
2020-09	RAN#89	R5-204869	0649	1	F	Adjacent Channel Selectivity FR2 MU and TT updates in 38.521-3	16.5.0
2020-09	RAN#89	R5-204924	0666	1	F	Update of Test applicability for some Inter-Band EN-DC including FR2 TCs	16.5.0
2020-09	RAN#89	R5-204925	0687	1	F	Clean up complete status for EN-DC test cases	16.5.0
2020-09	RAN#89	R5-204926	0731	1	F	Addition of pending UL-MIMO tests (FR2) in Clause 6	16.5.0
2020-09	RAN#89	R5-204928	0681	1	F	Update of NSA Rx test cases for 4Rx UEs	16.5.0
2020-09	RAN#89	R5-204929	0700	1	F	Addition of TC 7.5B.3_1.2 ACS for EN-DC within FR1 4CC	16.5.0
2020-09	RAN#89	R5-204930	0711	1	F	Addition of TC 7.6B.2.5D Inband blocking for inter-band EN-DC including FR1 and FR2 for UL-MIMO	16.5.0
2020-09	RAN#89	R5-204931	0712	1	F	Update for 7.3B.2.3 Ref sense for Inter-band EN-DC within FR1-2 CCs	16.5.0
2020-09	RAN#89	R5-204932	0719	1	F	Re-organization of EN-DC refsens test cases	16.5.0
2020-09	RAN#89	R5-204957	0695	1	F	Updated to clause 7 for EN-DC Rel-16 configuration test requirement	16.5.0
2020-09	RAN#89	R5-204958	0737	1	F	Add Rx TC for 2Rel 16 DC combos	16.5.0
2020-09	RAN#89	R5-205005	0741	-	F	Update of OOBB and Spurious Response of Inter-band EN-DC within FR1	16.5.0
2020-09	RAN#89	R5-205006	0690	1	F	Update Refsense exceptions for EN-DC including n78	16.5.0
2020-12	RAN#90	R5-205489	0749	-	F	Correction to Reference Sensitivity for Inter-band EN-DC	16.6.0
2020-12	RAN#90	R5-205500	0750	-	F	Minor correction of section 6.1	16.6.0
2020-12	RAN#90	R5-205501	0751	-	F	Correction of spec style in section 7.6B and 7.7B and correction of table number in 7.6B.3.3.4.1	16.6.0
2020-12	RAN#90	R5-205502	0752	-	F	Addition of intra-band contiguous EN-DC testing and update of interband EN-DC testing for 7.6B.2.3_1.1 Inband blocking for EN-DC within FR1 3 CCs	16.6.0

2020-12	RAN#90	R5-205503	0753	1	F	Addition of intra-band contiguous EN-DC testing and update of interband EN-DC testing for 7.6B.2.3_1.2 Inband blocking for EN-DC within FR1 4 CCs	16.6.0
2020-12	RAN#90	R5-205505	0755	-	F	Addition of new test case 7.6B.3.3_1.1 Out-of-band blocking for ENDC within FR1 3 CCs	16.6.0
2020-12	RAN#90	R5-205506	0756	-	F	Addition of new test case 7.6B.3.3_1.2 Out-of-band blocking for ENDC within FR1 4 CCs	16.6.0
2020-12	RAN#90	R5-205507	0757	-	F	Addition of intra-band contiguous EN-DC testing and update of interband EN-DC testing for 7.6B.4.3_1.1 Narrow band blocking for EN-DC within FR1 3 CCs	16.6.0
2020-12	RAN#90	R5-205508	0758	-	F	Addition of intra-band contiguous EN-DC testing and update of interband EN-DC testing for 7.6B.4.3_1.2 Narrow band blocking for EN-DC within FR1 4 CCs	16.6.0
2020-12	RAN#90	R5-205510	0760	-	F	Addition of new test case 7.7B.3_1.1 Spurious Response for EN-DC within FR1 3 CCs	16.6.0
2020-12	RAN#90	R5-205511	0761	-	F	Addition of new test case 7.7B.3_1.2 Spurious Response for EN-DC within FR1 4 CCs	16.6.0
2020-12	RAN#90	R5-205515	0763	-	F	Correction of section 7.1 and update of 7.6B.3.0.3A and 7.7B.0.3A as per RAN4 spec	16.6.0
2020-12	RAN#90	R5-205516	0764	-	F	Correction of uplink power and in gap test requirement for 7.6B.2.2, 7.6B.3.2, 7.6B.4.2 and 7.7B.2	16.6.0
2020-12	RAN#90	R5-205534	0768	-	F	Editorial, removing duplication of text in test case	16.6.0
2020-12	RAN#90	R5-205568	0776	-	F	Introduction of DC_3A-40A_n1A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-205678	0778	-	F	Addition of Clause 7.5B.4D ACS for inter-band EN-DC including FR2 for UL-MIMO	16.6.0
2020-12	RAN#90	R5-205679	0779	-	F	Addition of Clause 7.6B.2.4D Inband blocking for inter-band EN-DC including FR2 for UL-MIMO	16.6.0
2020-12	RAN#90	R5-205696	0782	-	F	Editorial correction to EN-DC test cases 6.5B.2.3	16.6.0
2020-12	RAN#90	R5-205775	0785	-	F	Adding delta TIB for a few Rel-16 inter-band EN-DC configurations within FR1	16.6.0
2020-12	RAN#90	R5-205776	0786	-	F	Adding refsens exceptions for DC_3_n78 due to receiver harmonic mixing	16.6.0
2020-12	RAN#90	R5-205778	0788	-	F	Adding delta RIB for DC_2-7-66_n78	16.6.0
2020-12	RAN#90	R5-205784	0790	-	F	Update of UE co-existence spurious emissions for Rel-16 inter-band EN-DC DC_13_n66	16.6.0
2020-12	RAN#90	R5-205788	0792	-	F	Correction to UE co-existence spurious emissions for inter-band EN-DC within FR1	16.6.0
2020-12	RAN#90	R5-205803	0793	-	F	Introduction of New TC 6.4B.2.4.2_1.1 Carrier Leakage for interband EN-DC including FR2 with 3 CCs	16.6.0
2020-12	RAN#90	R5-205804	0794	-	F	Introduction of New TC 6.4B.2.4.2_1.2 Carrier Leakage for interband EN-DC including FR2 with 4 CCs	16.6.0
2020-12	RAN#90	R5-205806	0795	-	F	Introduction of New TC 6.4B.2.4.2_1.3 Carrier Leakage for interband EN-DC including FR2 with 5 CCs	16.6.0
2020-12	RAN#90	R5-205855	0798	-	F	Correction of channel bandwidth for EN-DC MOP TC 6.2B.1.3	16.6.0
2020-12	RAN#90	R5-205911	0803	-	F	Introduction of DC_3A-20A_n78A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-205934	0805	-	F	Update of DC_1A-7A_n78A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-205935	0806	-	F	Update DC_7A-20A_n78A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-205994	0808	-	F	Updates to Reference sensitivity for EN-DC within FR1 3CC	16.6.0

2020-12	RAN#90	R5-206018	0811	-	F	Correction of 7.3B.3.3 for delta RIB with inter-band EN-DC configurations	16.6.0
2020-12	RAN#90	R5-206029	0813	-	F	Update spurious emission band UE co-existence for DC_2_n41 and DC_66_n41	16.6.0
2020-12	RAN#90	R5-206236	0832	-	F	Correction to Rel-16 EN-DC configuration DC_40A_n1A and DC_40A_n78 in spurious emission test case 6.5B.3.3.2	16.6.0
2020-12	RAN#90	R5-206237	0833	-	F	Introduction of Rel-16 EN-DC configuration DC_1A_n3A to spurious emission test case 6.5B.3.3.2	16.6.0
2020-12	RAN#90	R5-206238	0834	-	F	Introduction of Rel-16 EN-DC configuration DC_20A_n3A to spurious emission test case 6.5B.3.3.2	16.6.0
2020-12	RAN#90	R5-206255	0835	-	F	Update for 6.5B.3.2.2 Spurious emission band UE co-existence for intra-band non-contiguous EN-DC	16.6.0
2020-12	RAN#90	R5-206648	0766	1	F	Addition of TC6.3B.1.4D Minimum output power for inter-band EN-DC including FR2 for UL-MIMO	16.6.0
2020-12	RAN#90	R5-206649	0767	1	F	Addition of TC6.3B.3.4 Transmit ON/OFF time mask for inter-band EN-DC including FR2	16.6.0
2020-12	RAN#90	R5-206650	0777	1	F	Update on Transmit OFF power for EN-DC including FR2	16.6.0
2020-12	RAN#90	R5-206651	0789	1	F	Update of UE co-existence spurious emissions for a few Rel-15 inter-band EN-DC configurations	16.6.0
2020-12	RAN#90	R5-206652	0796	1	F	Addition of 6.5B.2.4D.3 Adjacent channel leakage ratio for inter-band EN-DC including FR2 for UL-MIMO	16.6.0
2020-12	RAN#90	R5-206653	0799	1	F	Update of 6.2B.1.4_1 MOP for Inter-Band EN-DC including FR2	16.6.0
2020-12	RAN#90	R5-206654	0821	1	F	Update for 6.5B.3.1.2 Spurious emission band UE co-existence for intra-band contiguous EN-DC	16.6.0
2020-12	RAN#90	R5-206655	0822	1	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Inter-band within FR1	16.6.0
2020-12	RAN#90	R5-206656	0780	1	F	Update for Clause F.1.3 Measurement of receiver	16.6.0
2020-12	RAN#90	R5-206657	0810	1	F	Correction of 7.3B.3.3 for allowed reference sensitivity relaxation	16.6.0
2020-12	RAN#90	R5-206658	0819	1	F	Update the interferer range for OOBB and Spurious Response of Inter-band EN-DC within FR1	16.6.0
2020-12	RAN#90	R5-206659	0823	1	F	Update for 7.3B.2.0 Minimum Conformance Requirements of Reference sensitivity for EN-DC	16.6.0
2020-12	RAN#90	R5-206660	0826	1	F	Editor's notes updates for FR1 inter-band 3CC DL CA	16.6.0
2020-12	RAN#90	R5-206661	0762	1	F	Addition of measurement uncertainties and test tolerance for blocking test cases for EN-DC within FR1 with 3CCs, 4CCs and 5CCs and correction of some spec styles	16.6.0
2020-12	RAN#90	R5-206662	0817	1	F	6.4B.2.1.1 Error Vector Magnitude for intra-band contiguous EN DC Measurement Uncertainty update	16.6.0
2020-12	RAN#90	R5-206663	0818	1	F	6.4B.2.1.2 Carrier Leakage for intra-band contiguous EN-DC Measurement Uncertainty update	16.6.0
2020-12	RAN#90	R5-206664	0820	1	F	FR1 Intra-band CA General Tx ON OFF time mask measurement uncertainties and test tolerances corrections	16.6.0
2020-12	RAN#90	R5-206665	0836	1	F	TS 38.521-3 Section 1-5 and Annex updates to align with core specification	16.6.0
2020-12	RAN#90	R5-206720	0742	1	F	Introduction of New test case 6.3B.1.4_1.1 Minimum output power for inter-band EN-DC including FR2 - 3 CCs	16.6.0
2020-12	RAN#90	R5-206721	0743	1	F	Introduction of New test case 6.3B.1.4_1.2 Minimum output power for inter-band EN-DC including FR2 - 4 CCs	16.6.0

2020-12	RAN#90	R5-206722	0744	1	F	Introduction of New test case 6.3B.1.4_1.3 Minimum output power for inter-band EN-DC including FR2 - 5 CCs	16.6.0
2020-12	RAN#90	R5-206723	0745	1	F	Introduction of New test case 6.4B.2.4.1_1.1 Error Vector Magnitude for inter-band EN-DC including FR2 - 3 CCs	16.6.0
2020-12	RAN#90	R5-206724	0746	1	F	Introduction of New test case 6.4B.2.4.1_1.2 Error Vector Magnitude for inter-band EN-DC including FR2 - 4 CCs	16.6.0
2020-12	RAN#90	R5-206725	0747	1	F	Introduction of New test case 6.4B.2.4.1_1.3 Error Vector Magnitude for inter-band EN-DC including FR2 - 5 CCs	16.6.0
2020-12	RAN#90	R5-206727	0787	1	F	Adding refsens exceptions for DC_3_n1 due to cross band isolation	16.6.0
2020-12	RAN#90	R5-206728	0783	1	F	Update to EN-DC R16 Configuration information in clause 5	16.6.0
2020-12	RAN#90	R5-206772	0781	1	F	Addition of PC2 Tx requirements for DC_3A_n41A	16.6.0
2020-12	RAN#90	R5-206773	0801	1	F	Addition of PC2 Tx requirements for DC_3A_n78A	16.6.0
2020-12	RAN#90	R5-206784	0802	1	F	Updating Rel-16 EN-DC PC2 MOP to add UE power class capability for NR part	16.6.0
2020-12	RAN#90	R5-206827	0829	1	F	Minimum output power editor's notes	16.6.0
2020-12	RAN#90	R5-206828	0828	1	F	Update FR2 TRx MU and TT in 38.521-3	16.6.0
2020-12	RAN#90	R5-206869	0809	1	F	Updates to Reference sensitivity for EN-DC within FR1 4CC restructuring test configuration tables	16.6.0
2020-12	RAN#90	R5-206870	0825	1	F	Measurement uncertainties and test tolerances updates for FR1 inter-band 3CC DL CA	16.6.0
2020-12	RAN#90	R5-206883	0772	1	F	Introduction of DC_3A_n1A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-206884	0773	1	F	Introduction of DC_1A_n3A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-206885	0774	1	F	Introduction of DC_20A_n3A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-206886	0775	1	F	Introduction of DC_40A_n78A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-206902	0769	1	F	Moving test configurations table for EN-DC 20_n78 to a general test configuration table for 2CC reference sensitivity exceptions	16.6.0
2020-12	RAN#90	R5-206903	0770	1	F	Introduction of DC_1A_n78A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-206904	0771	1	F	Introduction of DC_3A_n78A to reference sensitivity test	16.6.0
2020-12	RAN#90	R5-206913	0754	1	F	Update of 7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 5 CCs and removal of 7.6B.2.3_1.4 Inband blocking for EN-DC within FR1 6 CCs	16.6.0
2020-12	RAN#90	R5-206914	0759	1	F	Update of 7.6B.4.3_1.3 Narrow band blocking for EN-DC within FR1 5 CCs and removal of 7.6B.4.3_1.4 Narrow band blocking for EN-DC within FR1 6 CCs	16.6.0
2020-12	RAN#90	R5-206915	0807	1	F	Updates to Reference sensitivity for EN-DC within FR1 2CC for UE supporting single UL	16.6.0
2020-12	RAN#90	R5-206916	0827	1	F	Update for 7.3B.3.2	16.6.0
2020-12	RAN#90	R5-206918	0804	1	F	Addition of PC2 Rx requirements for DC_3A_n41A	16.6.0
2020-12	RAN#90	R5-206919	0814	1	F	Addition of PC2 ENDC DC_3A-n78A into TC7.3B.2.3	16.6.0
2021-03	RAN#91	R5-210093	0842	-	F	Introduction of DC_7A-20A_n3A to reference sensitivity test	16.7.0
2021-03	RAN#91	R5-210301	0847	-	F	Completion of OBW intra-band non-contiguous test 6.5B.1.2	16.7.0
2021-03	RAN#91	R5-210302	0848	-	В	Addition of new test case 6.5B.1.4D OBW for inter-band EN-DC FR2 UL MIMO	16.7.0
2021-03	RAN#91	R5-210387	0857	-	F	Correction to EN-DC OoB emissions	16.7.0
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2021-03	RAN#91	R5-210415	0858	-	F	Addition of new test case 6.4B.2.4.3_1.1 In-band Emissions for interband EN-DC including FR2 with 3 CCs	16.7.0
2021-03	RAN#91	R5-210416	0859	-	F	Addition of new test case 6.4B.2.4.3_1.2 In-band Emissions for interband EN-DC including FR2 with 4 CCs	16.7.0
2021-03	RAN#91	R5-210417	0860	-	F	Addition of new test case 6.4B.2.4.3_1.3 In-band Emissions for interband EN-DC including FR2 with 5 CCs	16.7.0
2021-03	RAN#91	R5-210497	0861	-	F	Correction of test frequencies for NR band n28 30MHz test channel bandwidth of 6.2B.1.3	16.7.0
2021-03	RAN#91	R5-210498	0862	-	F	Addition of editor note to the incomplete test cases	16.7.0
2021-03	RAN#91	R5-210499	0863	-	F	Correction of test applicability of 6.5B.5.3	16.7.0
2021-03	RAN#91	R5-210500	0864	-	F	Correction of test configuration tables in section 6	16.7.0
2021-03	RAN#91	R5-210501	0865	-	F	Completion of 7.6B.2.3_1.3 Inband blocking for EN-DC within FR1 5 CCs	16.7.0
2021-03	RAN#91	R5-210502	0866	-	F	Correction of test frequencies for NR band n28 30MHz test channel bandwidth of 7.6B.3.3	16.7.0
2021-03	RAN#91	R5-210548	0872	-	F	Default message exceptions for LTE carriers in EN-DC	16.7.0
2021-03	RAN#91	R5-210725	0874	-	F	Omitting of NSA Rx cases with UL-MIMO on TDD bands	16.7.0
2021-03	RAN#91	R5-210909	0882	-	F	Editorial correction to test case 6.2B.4.1.3	16.7.0
2021-03	RAN#91	R5-210943	0883	-	F	Adding delta TIB and delta RIB for DC_2-7-7-66_n78	16.7.0
2021-03	RAN#91	R5-210989	0889	-	F	Update for 7.3B.2.0 Minimum Conformance Requirements of Reference sensitivity for EN-DC	16.7.0
2021-03	RAN#91	R5-211005	0893	-	F	Update to EN-DC R16 Configuration information in clause 5	16.7.0
2021-03	RAN#91	R5-211010	0895	-	F	Update of reference sensitivity for intra-band contiguous EN-DC	16.7.0
2021-03	RAN#91	R5-211014	0899	-	F	Adding in-gap tests to ACS for intra-band non-contiguous EN-DC	16.7.0
2021-03	RAN#91	R5-211017	0901	-	F	Update of test coverage for reference sensitivity for 3CC EN-DC	16.7.0
2021-03	RAN#91	R5-211020	0902	-	F	Adding EN-DC configurations DC_1A-28A_n3A and DC_7A-28A_n3A to clause 5.5B.4.2	16.7.0
2021-03	RAN#91	R5-211099	0917	-	F	Correction to editors note about number of E-UTRA carriers	16.7.0
2021-03	RAN#91	R5-211111	0921	-	F	Corrections to subclauses in 38.521-3 with appropriate subclause level and heading styles	16.7.0
2021-03	RAN#91	R5-211125	0922	-	F	Update of 5.3B for UE channel bandwidth for EN-DC	16.7.0
2021-03	RAN#91	R5-211240	0934	-	F	Introduction of DC_7A-20A_n1A to reference sensitivity test	16.7.0
2021-03	RAN#91	R5-211241	0935	-	F	Introduction of DC_7A- 28A_n3A to referce sensitivity test	16.7.0
2021-03	RAN#91	R5-211694	0844	1	F	Spectrum emissions mask for intra-band non-contiguous EN-DC Test Definition	16.7.0
2021-03	RAN#91	R5-211695	0849	1	F	ACLR for intra-band non-contiguous EN-DC Test Definition	16.7.0
2021-03	RAN#91	R5-211696	0856	1	F	Update Test description of 6.5B.1.1	16.7.0
2021-03	RAN#91	R5-211697	0871	1	F	EN-DC FR2 UL CA Frequency error test cases update	16.7.0
2021-03	RAN#91	R5-211698	0876	1	F	Correction of test requirements for EN-DC configured output power	16.7.0
2021-03	RAN#91	R5-211699	0906	1	F	Introduction of Rel-15 EN-DC configuration DC_8A_n77A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211700	0907	1	F	Introduction of Rel-15 EN-DC configuration DC_11A_n77A to spurious emission test case 6.5B.3.3.2	16.7.0
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2021-03	RAN#91	R5-211701	0908	1	F	Introduction of Rel-15 EN-DC configuration DC_11A_n78A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211702	0909	1	F	Introduction of Rel-15 EN-DC configuration DC_11A_n79A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211703	0910	1	F	Introduction of Rel-15 EN-DC configuration DC_25A_n41A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211704	0911	1	F	Introduction of Rel-15 EN-DC configuration DC_26A_n41A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211705	0912	1	F	Introduction of Rel-15 EN-DC configuration DC_26A_n77A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211706	0913	1	F	Introduction of Rel-15 EN-DC configuration DC_26A_n78A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211707	0914	1	F	Introduction of Rel-15 EN-DC configuration DC_26A_n79A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211708	0915	1	F	Introduction of Rel-15 EN-DC configuration DC_41A_n77A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211709	0916	1	F	Introduction of Rel-15 EN-DC configuration DC_41A_n78A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211710	0853	1	F	Correction of MSD test point on Table 7.3B.2.0.3.5.2-1 DC_1A-8A_n78A	16.7.0
2021-03	RAN#91	R5-211711	0854	1	F	Update of 7.3B.2.3_1.1 RefSens DC_3A-8A_n78A	16.7.0
2021-03	RAN#91	R5-211712	0855	1	F	Addition of new test case 7.3B.4 for EIS Spherical Coverage	16.7.0
2021-03	RAN#91	R5-211713	0867	1	F	Editorial correction for errors in 7.6B.4.3_1	16.7.0
2021-03	RAN#91	R5-211714	0868	1	F	Correction of test configuration tables in section 7	16.7.0
2021-03	RAN#91	R5-211715	0877	1	F	Clarification of tested Rx antenna numbers on E-UTRA band	16.7.0
2021-03	RAN#91	R5-211766	0837	1	F	Introduction of Rel-16 EN-DC configuration DC_7A_n3A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211767	0838	1	F	Introduction of Rel-16 EN-DC configuration DC_8A_n3A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211768	0839	1	F	Introduction of Rel-16 EN-DC configuration DC_20A_n1A to spurious emission test case 6.5B.3.3.2	16.7.0
2021-03	RAN#91	R5-211769	0887	1	F	Update for 6.5B.3.3.2 Spurious emission band UE co- existence_Rel16	16.7.0
2021-03	RAN#91	R5-211770	0903	1	F	Adding Delta TIB,c for DC_1A-28A_n3A, DC_7A-20A_n1A and DC_7A-28A_n3A to clause 6.2B.4.2.3.3	16.7.0
2021-03	RAN#91	R5-211771	0840	1	F	Introduction of DC_7A_n3A to reference sensitivity test	16.7.0
2021-03	RAN#91	R5-211772	0841	1	F	Introduction of DC_8A_n1A and DC_8A_n3A to reference sensitivity test	16.7.0
2021-03	RAN#91	R5-211773	0869	1	F	Adding Inter-band EN-DC combination within FR1	16.7.0
2021-03	RAN#91	R5-211840	0878	1	F	Updating Rel-16 EN-DC PC2 MOP to include powerClassNRPart-r16	16.7.0
2021-03	RAN#91	R5-211841	0879	1	F	Updating Rel-16 EN-DC PC2 MPR to include powerClassNRPart-r16	16.7.0
2021-03	RAN#91	R5-211842	0880	1	F	Updating Rel-16 EN-DC PC2 A-MPR to include powerClassNRPart-r16	16.7.0
2021-03	RAN#91	R5-211843	0881	1	F	Updating Rel-16 EN-DC PC2 configured output power to include powerClassNRPart-r16	16.7.0
2021-03	RAN#91	R5-211852	0888	1	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence	16.7.0

2021-03	RAN#91	R5-211854	0890	1	F	Correction to EN-DC Wideband Intermodulation tests	16.7.0
2021-03	RAN#91	R5-211870	0843	1	F	Editorial addition of editors notes in 6.3B.8.1.4, 6.3B.8.2.4 and 6.3B.8.3.4	16.7.0
2021-03	RAN#91	R5-211871	0875	1	F	Correcting EN-DC A-MPR test requirements for non-overlapping test points	16.7.0
2021-03	RAN#91	R5-211872	0886	1	F	Correction to the TDM pattern configuration for EN-DC Tx test cases	16.7.0
2021-03	RAN#91	R5-211873	0918	1	F	Correction to MOP and MPR test procedures for PC2 in TC 6.2B.1.3 and 6.2B.2.1	16.7.0
2021-03	RAN#91	R5-211874	0845	1	F	Correction of LTE frequency for 19-n79 combo in 7.3B.2.3	16.7.0
2021-03	RAN#91	R5-211875	0870	1	F	Update to EN-DC Reference Sensitivity	16.7.0
2021-03	RAN#91	R5-211876	0896	1	F	Update of reference sensitivity for intra-band non-contiguous EN-DC	16.7.0
2021-03	RAN#91	R5-211877	0897	1	F	Update of reference sensitivity for inter-band 2CC EN-DC	16.7.0
2021-03	RAN#91	R5-211878	0898	1	F	Correction to refsens test requirements for DC_1A-7A_n78A	16.7.0
2021-03	RAN#91	R5-211879	0900	1	F	Update of test configuration for inter-band 2CC EN-DC configurations affected by reference sensitivity exceptions	16.7.0
2021-03	RAN#91	R5-211880	0924	1	F	Update of 2CC refsens test case 7.3B.2.3	16.7.0
2021-03	RAN#91	R5-211881	0925	1	F	Update of 3CC refsens test case 7.3B.2.3_1.1	16.7.0
2021-03	RAN#91	R5-211882	0926	1	F	Correction of configurations not to be tested in 4CC refsens test case 7.3B.2.3_1.2	16.7.0
2021-03	RAN#91	R5-211883	0927	1	F	Addition of DC_8A_n77A in test case 7.3B.2.3	16.7.0
2021-03	RAN#91	R5-211884	0928	1	F	Addition of DC_11A_n79A in test case 7.3B.2.3	16.7.0
2021-03	RAN#91	R5-211885	0929	1	F	Addition of DC_26A_n41A in test case 7.3B.2.3	16.7.0
2021-03	RAN#91	R5-211886	0930	1	F	Addition of DC_26A_n77A and DC_26A_n78A in test case 7.3B.2.3	16.7.0
2021-03	RAN#91	R5-211887	0931	1	F	Addition of DC_26A_n79A in test case 7.3B.2.3	16.7.0
2021-03	RAN#91	R5-211888	0932	1	F	Addition of DC_41A_n77A and DC_41A_n78A in test case 7.3B.2.3	16.7.0
2021-03	RAN#91	R5-211905	0933	1	F	Introduction of DC_1A-28A_n3A to reference sensitivity test	16.7.0
2021-03	RAN#91	R5-211926	0851	1	F	MU definition for UE MOP for Inter-Band EN-DC including FR2 (3CCs)	16.7.0
2021-03	RAN#91	R5-211927	0852	1	F	MU and TT definition for REFSENS EN-DC including FR2 up to 5CCs	16.7.0
2021-03	RAN#91	R5-211928	0920	1	F	Update FR2 MU and TT in 38.521-3	16.7.0
2021-03	RAN#91	-	-	-	-	Administrative release upgrade to match the release of TS 38.508-1, TS 38.508-2 and TS 38.521-1 which were upgraded at RAN#91 to Rel-17 due to Rel-17 relevant CRs	17.0.0
2021-06	RAN#92	R5-212345	0944	-	F	Define MU and TT for test case 7.9B.3_1.1	17.1.0
2021-06	RAN#92	R5-212349	0948	-	F	Update MU and TT in 38.521-3 for Transmit OFF Power FR2 CA tests	17.1.0
2021-06	RAN#92	R5-212350	0949	-	F	ACS and IBB - FR2 MU definition in 38.521-3	17.1.0
2021-06	RAN#92	R5-212531	0954	-	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Rel 16	17.1.0
2021-06	RAN#92	R5-212646	0976	-	F	Correcting test case title in 6.5B.2.2.2	17.1.0
2021-06	RAN#92	R5-212734	0977	-	F	Update UL-MIMO to UL MIMO in clause 6 to align with other specs	17.1.0
2021-06	RAN#92	R5-212735	0978	-	F	Update UL-MIMO to UL MIMO in clause 7 to align with other specs	17.1.0

2021-06	RAN#92	R5-212736	0979	-	F	Update UL-MIMO to UL MIMO in Common and Annexes to align with other specs	17.1.0
2021-06	RAN#92	R5-212749	0983	-	F	Update to EN-DC R15 common section	17.1.0
2021-06	RAN#92	R5-212824	0986	-	F	Correction of 6.2B.1.2 for test of UE maximum output power for intra-band non-contiguous EN-DC	17.1.0
2021-06	RAN#92	R5-212825	0987	-	F	Correction of 6.2B.1.3 for test of UE maximum output power for ENDC within FR1	17.1.0
2021-06	RAN#92	R5-212867	0992	-	F	Correction of the section order in 7.9B	17.1.0
2021-06	RAN#92	R5-212869	0994	-	F	Unify the SCS definitions in the test configuration tables	17.1.0
2021-06	RAN#92	R5-212976	0996	-	F	Updating H.2.2 for NR NSA testing	17.1.0
2021-06	RAN#92	R5-213018	0998	-	F	Update of E-UTRA TDD configuration for overlapping UL transmission	17.1.0
2021-06	RAN#92	R5-213019	0999	-	F	Update of TDM pattern configuration in EN-DC MOP and A-MPR cases	17.1.0
2021-06	RAN#92	R5-213020	1000	-	F	Update of EN-DC Tx cases to enable DFT-s-OFDM modulation for NR uplink carrier	17.1.0
2021-06	RAN#92	R5-213045	1006	-	F	Correction to reference sensitivity for DC_41A_n77A and DC_41A_n78A	17.1.0
2021-06	RAN#92	R5-213046	1007	-	F	Correction to reference sensitivity for a few Rel-16 EN-DC combinations	17.1.0
2021-06	RAN#92	R5-213047	1008	-	F	Correction to test description in 7.3B.2 refsens for EN-DC within FR1	17.1.0
2021-06	RAN#92	R5-213048	1009	-	F	Update of test requirements for exception avoiding test points in 7.3B.2.3 refsens for inter-band EN-DC	17.1.0
2021-06	RAN#92	R5-213059	1011	-	F	Update of 6.4B.2.2.3 In-band Emissions for intra-band non- contiguous EN-DC	17.1.0
2021-06	RAN#92	R5-213060	1012	-	F	Correction of 7.4B.3_1 Maximum Input Level for EN-DC within FR1 with more than 2 CCs	17.1.0
2021-06	RAN#92	R5-213200	1015	-	F	Correction to EN-DC FR1 TC6.3B.1.1	17.1.0
2021-06	RAN#92	R5-213377	1028	-	F	Correcting test procedure and test requirement for MPR Intra-Band Contiguous EN-DC	17.1.0
2021-06	RAN#92	R5-213843	0971	1	F	Correction of power control in 38.521-3	17.1.0
2021-06	RAN#92	R5-213844	1020	1	F	FR2 Inter-band Carrier Aggregation Minimum Output power updates	17.1.0
2021-06	RAN#92	R5-213845	1010	1	F	Adding refsens testing per band for all inter-band 2CC EN-DC FR1 non-exception requirements	17.1.0
2021-06	RAN#92	R5-213846	1019	1	F	Measurement uncertainties and test tolerances for FR2 Inter-band Carrier Aggregation Minimum Output power	17.1.0
2021-06	RAN#92	R5-213905	0947	1	F	Update 6.2B.1.1 according to core requirements	17.1.0
2021-06	RAN#92	R5-213906	0952	1	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Rel 15 DC_2A_n71A	17.1.0
2021-06	RAN#92	R5-213907	0955	1	F	Update for 6.5B.3.3.2 for Rel 15 requirement	17.1.0
2021-06	RAN#92	R5-213908	0975	1	F	References to voided clause 5.2B.2 corrected	17.1.0
2021-06	RAN#92	R5-213909	0990	1	F	Removal of test cases in 6.3B.2.4_1	17.1.0
2021-06	RAN#92	R5-213910	0997	1	F	Correction of test frequencies for NR band n28 30MHz test channel bandwidth in 6.2B.4.1.3	17.1.0
2021-06	RAN#92	R5-213911	1001	1	F	Update of EN-DC Tx test cases with LTE anchor agnostic approach applied	17.1.0
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2021-06	RAN#92	R5-213912	1023	1	F	Updates to Frequency Error for Inter-band EN-DC including FR2 (>2 CCs)	17.1.0
2021-06	RAN#92	R5-213913	1025	1	F	Addition of missing EN-DC Beam Correspondence requirements	17.1.0
2021-06	RAN#92	R5-213914	0963	1	F	Addition of 7.5B.3_1.3 ACS for EN-DC within FR1 5 CCs	17.1.0
2021-06	RAN#92	R5-213915	0964	1	F	Addition of 7.5B.3_1.4 ACS for EN-DC within FR1 6 CCs	17.1.0
2021-06	RAN#92	R5-213916	0973	1	F	Update of FR1 EN-DC intermodulation with 4CC in TC 7.8B.2.3_1.2	17.1.0
2021-06	RAN#92	R5-213917	1029	1	F	Correction to EN-DC Rx test case and format	17.1.0
2021-06	RAN#92	R5-213918	0967	1	F	Update of Annex F.1.3 for ACS for EN-DC within FR1 5CCs and 6CCs	17.1.0
2021-06	RAN#92	R5-213973	0942	1	F	Correction to EN-DC configuration DC_7A_n3A spurious emission test requirement	17.1.0
2021-06	RAN#92	R5-213974	0953	1	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence for Rel 16 DC_66A_n2A	17.1.0
2021-06	RAN#92	R5-213975	0988	1	F	Update of 6.5B.3.3 for spurious emission for DC_2_n41	17.1.0
2021-06	RAN#92	R5-213976	0956	1	F	Correction for DC_7A-20A_n3A reference sensitivity test	17.1.0
2021-06	RAN#92	R5-214008	1018	1	F	Update of PC2 ENDC DC_3A-n78A into 38.521-3 TC7.3B.2.3	17.1.0
2021-06	RAN#92	R5-214030	1014	1	F	Addition of PC2 ENDC DC_1A-n78A into 38.521-3 TC7.3B.2.3	17.1.0
2021-06	RAN#92	R5-214041	0972	1	F	Correction of ON OFF time mask in 38.521-3	17.1.0
2021-06	RAN#92	R5-214052	0993	1	F	Correction of for further study notes about FR2 ETC testing	17.1.0
2021-06	RAN#92	R5-214053	1002	1	F	Correction to UE co-existence spurious emissions for intra-band contiguous EN-DC	17.1.0
2021-06	RAN#92	R5-214054	1003	1	F	Correction to UE co-existence spurious emissions for intra-band non-contiguous EN-DC	17.1.0
2021-06	RAN#92	R5-214055	1004	1	F	Correction to test configuration for general spurious emissions for inter-band EN-DC	17.1.0
2021-06	RAN#92	R5-214056	1005	1	F	Updating test requirements for general spurious emissions for interband EN-DC	17.1.0
2021-06	RAN#92	R5-214057	1024	1	F	Update of Spurious emission band UE co-existence test case	17.1.0
2021-06	RAN#92	R5-214072	0950	1	F	Update of 6.5B.3.3.2 for Rel-16 combo DC_14A_n2A and DC_14A_n66A	17.1.0
2021-06	RAN#92	R5-214079	0958	1	F	Update of Applicability for Tx inter-band EN-DC including FR2 under R15 WI	17.1.0
2021-06	RAN#92	R5-214080	0974	1	F	Editor's note for Wgap can be removed in 6.5B.4.2	17.1.0
2021-06	RAN#92	R5-214081	0980	1	F	Update of applicability for EN-DC Tx tests within FR1	17.1.0
2021-06	RAN#92	R5-214082	0959	1	F	Update of Applicability for Rx inter-band EN-DC including FR2	17.1.0
2021-06	RAN#92	R5-214083	0961	1	F	Correction of 7.5B.3_1.1 ACS for EN-DC within FR1 3 CCs	17.1.0
2021-06	RAN#92	R5-214084	0962	1	F	Correction of 7.5B.3_1.2 ACS for EN-DC within FR1 4 CCs	17.1.0
2021-06	RAN#92	R5-214085	0966	1	F	Update of Applicability for 7.5B.3 ACS for inter-band EN-DC within FR1 2 CCs	17.1.0
2021-06	RAN#92	R5-214086	0981	1	F	Update of applicability for EN-DC Rx tests within FR1	17.1.0
2021-06	RAN#92	R5-214087	0982	1	F	Correction to EN-DC inter-band FR2 test cases 7.3B.2.4_1.x	17.1.0
2021-06	RAN#92	R5-214094	0957	1	F	Update of Applicability for Tx inter-band EN-DC including FR2 under R16 WI	17.1.0
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2021-06	RAN#92	R5-214095	0984	1	F	Update to EN-DC R16 common section	17.1.0
2021-09	RAN#93	R5-214188	1030	-	F	Update of R17 CADC configurations into TS38.521-3 clause 5	17.2.0
2021-09	RAN#93	R5-214280	1032	-	F	Introduction of Rel-15 EN-DC DC_1A_n77A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214281	1033	-	F	Introduction of Rel-15 EN-DC DC_1A_n79A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214282	1034	-	F	Introduction of Rel-15 EN-DC DC_3A_n28A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214283	1035	-	F	Introduction of Rel-15 EN-DC DC_3A_n77A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214290	1042	-	F	Introduction of Rel-15 EN-DC DC_21A_n77A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214291	1043	-	F	Introduction of Rel-15 EN-DC DC_21A_n78A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214292	1044	-	F	Introduction of Rel-15 EN-DC DC_21A_n79A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214293	1045	-	F	Introduction of Rel-15 EN-DC DC_28A_n77A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214296	1048	-	F	Introduction of Rel-15 EN-DC DC_42A_n77A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214298	1050	-	F	Update of Rel-15 EN-DC DC_3A_n79A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214299	1051	-	F	Update of Rel-15 EN-DC DC_5A_n66A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214301	1053	-	F	Update of Rel-15 EN-DC DC_7A_n78A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214302	1054	-	F	Update of Rel-15 EN-DC DC_11A_n77A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214303	1055	-	F	Update of Rel-15 EN-DC DC_11A_n78A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214304	1056	-	F	Update of Rel-15 EN-DC DC_11A_n79A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214307	1059	-	F	Update of Rel-15 EN-DC DC_26A_n78A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214308	1060	-	F	Update of Rel-15 EN-DC DC_39A_n79A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214309	1061	-	F	Update of Rel-15 EN-DC DC_41A_n77A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214310	1062	-	F	Update of Rel-15 EN-DC DC_41A_n78A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214311	1063	-	F	Update of Rel-15 EN-DC DC_41A_n79A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214312	1064	-	F	Update of Rel-15 EN-DC DC_66A_n5A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214313	1065	-	F	Update of Rel-15 EN-DC DC_66A_n78A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214318	1067	-	F	Update of Rel-16 EN-DC DC_40A_n78A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-214384	1070	-	F	Update clause 7 for R17 DC RX characteristics in TS 38.521-3	17.2.0
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2021-09   RANN93   R5-214481   1071								
2021-09 RAN#93 RS-214844 1073 - F Clarification on NSA Option 3 Rx test cases 17.2.0 2021-09 RAN#93 RS-214846 1094 - F Correction to EN-DC receiver spurious emission test cases 17.2.0 2021-09 RAN#93 RS-215061 1096 - F Correction to EN-DC Tx test cases 17.2.0 2021-09 RAN#93 RS-215061 1098 - F Update of REFSENS for inter-band EN-DC 2CC adding DC_1A- 2021-09 RAN#93 RS-215062 1099 - F Update of REFSENS for inter-band EN-DC 3CC adding DC_1A- 2021-09 RAN#93 RS-215063 1100 - F Update of REFSENS for inter-band EN-DC 3CC adding DC_1A- 2021-09 RAN#93 RS-215194 1100 - F Correction to 6.28 2.1 MPR for inter-band contiguous EN-DC 17.2.0 2021-09 RAN#93 RS-215195 1100 - F Correction to 6.28 2.2 MPR for inter-band contiguous EN-DC 17.2.0 2021-09 RAN#93 RS-215195 1103 - F Correction to 6.28 2.1 MPR for intra-band contiguous EN-DC 17.2.0 2021-09 RAN#93 RS-215209 1113 - F Correction to 6.58 2.1 SEM for intra-band contiguous EN-DC 17.2.0 2021-09 RAN#93 RS-21520 1114 - F Correction to 6.58 2.1 SEM for intra-band contiguous EN-DC 17.2.0 2021-09 RAN#93 RS-215223 1118 - F Correction to 6.58 2.1 SEM for intra-band contiguous EN-DC 17.2.0 2021-09 RAN#93 RS-215223 1119 - F Correction to 6.58 2.1 SEM for intra-band contiguous EN-DC 17.2.0 2021-09 RAN#93 RS-215223 1120 - F Addition of test case body to 6.58 5 transmit intermodulation 17.2.0 2021-09 RAN#93 RS-215233 1120 - F Addition of test case body to 6.58 5 transmit intermodulation 17.2.0 2021-09 RAN#93 RS-215254 1126 - F Addition of reference sensitivity testing for DC_1A-7A_n28A 17.2.0 2021-09 RAN#93 RS-215254 1126 - F Addition of reference sensitivity testing for DC_1A-7A_n28A 17.2.0 2021-09 RAN#93 RS-215254 1126 - F Addition of reference sensitivity testing for DC_3A-7A_n28A 17.2.0 2021-09 RAN#93 RS-215255 1127 - F Correction to reference sensitivity testing for DC_3A-7A_n28A 17.2.0 2021-09 RAN#93 RS-215256 1126 - F Addition of reference sensitivity testing for DC_3A-7A_n28A 17.2.0 2021-09 RAN#93 RS-215256 1126 - F Update of reference sensitivity testing for DC_3A-7A_n28A 17.2.0 202	2021-09	RAN#93	R5-214481	1071	-	F	Update of Applicability and Titles for ACS for EN-DC within FR1	17.2.0
2021-09   RANIP93   R5-215484   1094   F   Correction to EN-DC receiver spurious emission test cases   17.2.0	2021-09	RAN#93	R5-214483	1072	-	F	Clarification on NSA Option 3 Tx test cases	17.2.0
2021-09   RAN#93   R6-215061   1098   F   Correcting references in EN-DC TX test cases   17.20	2021-09	RAN#93	R5-214484	1073	-	F	Clarification on NSA Option 3 Rx test cases	17.2.0
2021-09   RAN#93   R5-215061   1098   F   Update of REFSENS for inter-band EN-DC 2CC adding DC_1A- DC_2BA_n78A   17.2.0	2021-09	RAN#93	R5-214846	1094	-	F	Correction to EN-DC receiver spurious emission test cases	17.2.0
DC_28A_n78A   DC_28A_n78A	2021-09	RAN#93	R5-215047	1096	-	F	Correcting references in EN-DC TX test cases	17.2.0
28A_n78A   2261-09   RAN#93   R5-215063   1100   -   F   Update of REFSENS for inter-band EN-DC 3CC adding DC_3A-   17.2.0   2261-09   RAN#93   R5-215194   1108   -   F   Correction to 6.2B.2.1 MPR for intra-band contiguous EN-DC   17.2.0   22021-09   RAN#93   R5-215209   1113   -   F   Correction to 6.2B.2.2 MPR for intra-band contiguous EN-DC   17.2.0   22021-09   RAN#93   R5-215209   1113   -   F   Correction to 6.5B.2.1.1 SEM for intra-band contiguous EN-DC   17.2.0   22021-09   RAN#93   R5-215223   1118   -   F   Correction to 6.5B.2.1.3 ACLR for intra-band contiguous EN-DC   17.2.0   22021-09   RAN#93   R5-215223   1118   -   F   Correction to 6.5B.3.1.2 and 6.5B.3.2.2 UE co-existence spurious emissions   22021-09   RAN#93   R5-215223   1110   -   F   Correction to 6.4B.2 in-band emission for intra-band contiguous EN-DC   17.2.0   22021-09   RAN#93   R5-215230   1120   -   F   Addition of test case body to 6.5B.5 transmit intermodulation   17.2.0   22021-09   RAN#93   R5-215232   1122   -   F   Addition of reference sensitivity testing for DC_1A_n28A-n78A   17.2.0   22021-09   RAN#93   R5-215233   1123   -   F   Addition of reference sensitivity testing for DC_1A-n28A-n78A   17.2.0   22021-09   RAN#93   R5-215235   1125   -   F   Addition of reference sensitivity testing for DC_1A-7A_n28A   17.2.0   22021-09   RAN#93   R5-215255   1125   -   F   Addition of reference sensitivity testing for DC_3A-7A_n28A   17.2.0   22021-09   RAN#93   R5-215255   1127   -   F   Correction to reference sensitivity test coverage for 4CC EN-DC   17.2.0   22021-09   RAN#93   R5-215257   1129   -   F   Update of reference sensitivity test coverage for 4CC EN-DC   17.2.0   22021-09   RAN#93   R5-215257   1129   -   F   Update of reference sensitivity test coverage for 4CC EN-DC   17.2.0   22021-09   RAN#93   R5-215292   1135   -   F   Update of reference sensitivity test coverage for 4CC EN-DC   17.2.0   22021-09   RAN#93   R5-215294   1136   -   F   Update of reference sensitivity test coverage for 4CC EN-DC   17.2.0   22021	2021-09	RAN#93	R5-215061	1098	-	F		17.2.0
28A_n78A   2021-09   RAN#93   R5-215194   1108   -   F   Correction to 6.2B.2.1 MPR for intra-band contiguous EN-DC   17.2.0   2021-09   RAN#93   R5-215195   1109   -   F   Correction to 6.2B.2.1 MPR for intra-band non-contiguous EN-DC   17.2.0   2021-09   RAN#93   R5-215209   1113   -   F   Correction to 6.5B.2.1.1 SEM for intra-band contiguous EN-DC   17.2.0   2021-09   RAN#93   R5-215230   1114   -   F   Correction to 6.5B.2.1.3 ACLR for intra-band contiguous EN-DC   17.2.0   2021-09   RAN#93   R5-215223   1118   -   F   Correction to 6.5B.2.1.3 ACLR for intra-band contiguous EN-DC   17.2.0   2021-09   RAN#93   R5-215223   1119   -   F   Correction to 6.5B.3.1.2 and 6.5B.3.2.2 UE co-existence spurious emissions   emissions   2021-09   RAN#93   R5-215228   1119   -   F   Correction to 6.4B.2 in-band emission for intra-band contiguous EN-DC   DC   2021-09   RAN#93   R5-215230   1120   -   F   Addition of testence sensitivity testing for DC_1A_n28A-n78A   17.2.0   2021-09   RAN#93   R5-215232   1122   -   F   Addition of reference sensitivity testing for DC_1A_n28A-n78A   17.2.0   2021-09   RAN#93   R5-215233   1123   -   F   Addition of reference sensitivity testing for DC_1A-3A_n28A   17.2.0   2021-09   RAN#93   R5-215235   1125   -   F   Addition of reference sensitivity testing for DC_1A-7A_n28A   17.2.0   2021-09   RAN#93   R5-215255   1125   -   F   Addition of reference sensitivity testing for DC_3A-7A_n28A   17.2.0   2021-09   RAN#93   R5-215255   1127   -   F   Correction to reference sensitivity test coverage for ACC EN-DC   17.2.0   2021-09   RAN#93   R5-215257   1129   -   F   Update of reference sensitivity test coverage for ACC EN-DC   17.2.0   2021-09   RAN#93   R5-215257   1129   -   F   Update of reference sensitivity test coverage for ACC EN-DC   17.2.0   2021-09   RAN#93   R5-215257   1135   -   F   Update of reference sensitivity test coverage for ACC EN-DC   17.2.0   2021-09   RAN#93   R5-215266   1130   -   F   Editorial correction to clause 7.3B.2.0.3   17.2.0   2021-09   RAN#93   R5-21	2021-09	RAN#93	R5-215062	1099	-	F		17.2.0
2021-09   RAN#93   R5-215209   1110   -   F   Correction to 6.2B.2.2 MPR for intra-band non-contiguous EN-DC   17.2.0	2021-09	RAN#93	R5-215063	1100	-	F		17.2.0
2021-09   RAN#93   R5-215203   1113   -	2021-09	RAN#93	R5-215194	1108	-	F	Correction to 6.2B.2.1 MPR for intra-band contiguous EN-DC	17.2.0
2021-09   RAN#93   R5-215210   1114   -   F   Correction to 6.5B.2.1.3 ACLR for intra-band contiguous EN-DC   17.2.0	2021-09	RAN#93	R5-215195	1109	-	F	Correction to 6.2B.2.2 MPR for intra-band non-contiguous EN-DC	17.2.0
2021-09   RAN#93   R5-215223   1118   -	2021-09	RAN#93	R5-215209	1113	-	F	Correction to 6.5B.2.1.1 SEM for intra-band contiguous EN-DC	17.2.0
emissions    emissions	2021-09	RAN#93	R5-215210	1114	-	F	Correction to 6.5B.2.1.3 ACLR for intra-band contiguous EN-DC	17.2.0
DC   DC   DC   DC   DC   DC   DC   DC	2021-09	RAN#93	R5-215223	1118	-	F	· ·	17.2.0
2021-09   RAN#93   R5-215232   1122   -   F   Addition of reference sensitivity testing for DC_1A_n28A-n78A   17.2.0	2021-09	RAN#93	R5-215228	1119	-	F		17.2.0
2021-09 RAN#93 R5-215233 1123 - F Addition of reference sensitivity testing for DC_1A-3A_n28A 17.2.0 2021-09 RAN#93 R5-215234 1124 - F Addition of reference sensitivity testing for DC_1A-7A_n28A 17.2.0 2021-09 RAN#93 R5-215235 1125 - F Addition of reference sensitivity testing for DC_3A-7A_n28A 17.2.0 2021-09 RAN#93 R5-215254 1126 - F Update of reference sensitivity test requirements for DC_41A_n77A 17.2.0 2021-09 RAN#93 R5-215255 1127 - F Correction to reference sensitivity test configuration for 3CC EN-DC 17.2.0 2021-09 RAN#93 R5-215257 1129 - F Update of reference sensitivity test coverage for 4CC EN-DC 17.2.0 2021-09 RAN#93 R5-215266 1130 - F Added refsens deltaRIB test case for EN-DC including FR1 and FR2 17.2.0 2021-09 RAN#93 R5-215292 1135 - F Updating 7.3B.2.3 REFSENS testing for DC_3A-20A_n28A 17.2.0 2021-09 RAN#93 R5-215294 1136 - F Updating 7.3B.2.3 REFSENS testing for DC_7A-20A_n28A 17.2.0 2021-09 RAN#93 R5-215296 1137 - F Editorial correction to clause 7.3B.2.0.3 17.2.0 2021-09 RAN#93 R5-215337 1140 - F Correction of power control in 38.521-3 17.2.0 2021-09 RAN#93 R5-215376 1142 - F Update to EN-DC R15 common section 17.2.0 2021-09 RAN#93 R5-215376 1144 - F Update to EN-DC R15 common section 17.2.0 2021-09 RAN#93 R5-215378 1144 - F Update to EN-DC R17 common section 17.2.0 2021-09 RAN#93 R5-215379 1145 - F Update to EN-DC Tx tests 17.2.0	2021-09	RAN#93	R5-215230	1120	-	F	Addition of test case body to 6.5B.5 transmit intermodulation	17.2.0
2021-09   RAN#93   R5-215234   1124   -   F   Addition of reference sensitivity testing for DC_1A-7A_n28A   17.2.0	2021-09	RAN#93	R5-215232	1122	-	F	Addition of reference sensitivity testing for DC_1A_n28A-n78A	17.2.0
2021-09   RAN#93   R5-215255   1125   -   F   Addition of reference sensitivity testing for DC_3A-7A_n28A   17.2.0	2021-09	RAN#93	R5-215233	1123	-	F	Addition of reference sensitivity testing for DC_1A-3A_n28A	17.2.0
2021-09 RAN#93 R5-215254 1126 - F Update of reference sensitivity test requirements for DC_41A_n77A 17.2.0 and DC_41A_n78A	2021-09	RAN#93	R5-215234	1124	-	F	Addition of reference sensitivity testing for DC_1A-7A_n28A	17.2.0
and DC_41A_n78A  2021-09 RAN#93 R5-215255 1127 - F Correction to reference sensitivity test configuration for 3CC EN-DC 17.2.0  2021-09 RAN#93 R5-215257 1129 - F Update of reference sensitivity test coverage for 4CC EN-DC 17.2.0  2021-09 RAN#93 R5-215266 1130 - F Added refsens deltaRIB test case for EN-DC including FR1 and FR2 17.2.0  2021-09 RAN#93 R5-215292 1135 - F Updating 7.3B.2.3 REFSENS testing for DC_3A-20A_n28A 17.2.0  2021-09 RAN#93 R5-215294 1136 - F Updating 7.3B.2.3 REFSENS testing for DC_7A-20A_n28A 17.2.0  2021-09 RAN#93 R5-215296 1137 - F Editorial correction to clause 7.3B.2.0.3 17.2.0  2021-09 RAN#93 R5-215323 1138 - F Correction of power control in 38.521-3 17.2.0  2021-09 RAN#93 R5-215337 1140 - F Correction of test CBW for n28 in 6.2B.1.3 17.2.0  2021-09 RAN#93 R5-215376 1142 - F Update to EN-DC R15 common section 17.2.0  2021-09 RAN#93 R5-215378 1144 - F Update to EN-DC R17 common section 17.2.0  2021-09 RAN#93 R5-215379 1145 - F Update of R15 EN-DC Tx tests 17.2.0	2021-09	RAN#93	R5-215235	1125	-	F	Addition of reference sensitivity testing for DC_3A-7A_n28A	17.2.0
2021-09         RAN#93         R5-215257         1129         -         F         Update of reference sensitivity test coverage for 4CC EN-DC configurations         17.2.0           2021-09         RAN#93         R5-215266         1130         -         F         Added refsens deltaRIB test case for EN-DC including FR1 and FR2         17.2.0           2021-09         RAN#93         R5-215292         1135         -         F         Updating 7.3B.2.3 REFSENS testing for DC_3A-20A_n28A         17.2.0           2021-09         RAN#93         R5-215294         1136         -         F         Updating 7.3B.2.3 REFSENS testing for DC_7A-20A_n28A         17.2.0           2021-09         RAN#93         R5-215296         1137         -         F         Editorial correction to clause 7.3B.2.0.3         17.2.0           2021-09         RAN#93         R5-215323         1138         -         F         Correction of power control in 38.521-3         17.2.0           2021-09         RAN#93         R5-215337         1140         -         F         Update to EN-DC R15 common section         17.2.0           2021-09         RAN#93         R5-215378         1144         -         F         Update to EN-DC R15 common section         17.2.0           2021-09         RAN#93         R5-21537	2021-09	RAN#93	R5-215254	1126	-	F		17.2.0
Configurations   Conf	2021-09	RAN#93	R5-215255	1127	-	F	Correction to reference sensitivity test configuration for 3CC EN-DC	17.2.0
2021-09       RAN#93       R5-215292       1135       -       F       Updating 7.3B.2.3 REFSENS testing for DC_3A-20A_n28A       17.2.0         2021-09       RAN#93       R5-215294       1136       -       F       Updating 7.3B.2.3 REFSENS testing for DC_7A-20A_n28A       17.2.0         2021-09       RAN#93       R5-215296       1137       -       F       Editorial correction to clause 7.3B.2.0.3       17.2.0         2021-09       RAN#93       R5-215323       1138       -       F       Correction of power control in 38.521-3       17.2.0         2021-09       RAN#93       R5-215337       1140       -       F       Correction of test CBW for n28 in 6.2B.1.3       17.2.0         2021-09       RAN#93       R5-215376       1142       -       F       Update to EN-DC R15 common section       17.2.0         2021-09       RAN#93       R5-215378       1144       -       F       Update to EN-DC R17 common section       17.2.0         2021-09       RAN#93       R5-215379       1145       -       F       Update of R15 EN-DC Tx tests       17.2.0         2021-09       RAN#93       R5-215380       1146       -       F       Update of applicability and title for R16 EN-DC Tx tests       17.2.0	2021-09	RAN#93	R5-215257	1129	-	F		17.2.0
2021-09       RAN#93       R5-215294       1136       -       F       Updating 7.3B.2.3 REFSENS testing for DC_7A-20A_n28A       17.2.0         2021-09       RAN#93       R5-215296       1137       -       F       Editorial correction to clause 7.3B.2.0.3       17.2.0         2021-09       RAN#93       R5-215323       1138       -       F       Correction of power control in 38.521-3       17.2.0         2021-09       RAN#93       R5-215337       1140       -       F       Correction of test CBW for n28 in 6.2B.1.3       17.2.0         2021-09       RAN#93       R5-215376       1142       -       F       Update to EN-DC R15 common section       17.2.0         2021-09       RAN#93       R5-215378       1144       -       F       Update to EN-DC R17 common section       17.2.0         2021-09       RAN#93       R5-215379       1145       -       F       Update of R15 EN-DC Tx tests       17.2.0         2021-09       RAN#93       R5-215380       1146       -       F       Update of applicability and title for R16 EN-DC Tx tests       17.2.0	2021-09	RAN#93	R5-215266	1130	-	F	Added refsens deltaRIB test case for EN-DC including FR1 and FR2	17.2.0
2021-09       RAN#93       R5-215296       1137       -       F       Editorial correction to clause 7.3B.2.0.3       17.2.0         2021-09       RAN#93       R5-215323       1138       -       F       Correction of power control in 38.521-3       17.2.0         2021-09       RAN#93       R5-215337       1140       -       F       Correction of test CBW for n28 in 6.2B.1.3       17.2.0         2021-09       RAN#93       R5-215376       1142       -       F       Update to EN-DC R15 common section       17.2.0         2021-09       RAN#93       R5-215378       1144       -       F       Update to EN-DC R17 common section       17.2.0         2021-09       RAN#93       R5-215379       1145       -       F       Update of R15 EN-DC Tx tests       17.2.0         2021-09       RAN#93       R5-215380       1146       -       F       Update of applicability and title for R16 EN-DC Tx tests       17.2.0	2021-09	RAN#93	R5-215292	1135	-	F	Updating 7.3B.2.3 REFSENS testing for DC_3A-20A_n28A	17.2.0
2021-09       RAN#93       R5-215323       1138       -       F       Correction of power control in 38.521-3       17.2.0         2021-09       RAN#93       R5-215337       1140       -       F       Correction of test CBW for n28 in 6.2B.1.3       17.2.0         2021-09       RAN#93       R5-215376       1142       -       F       Update to EN-DC R15 common section       17.2.0         2021-09       RAN#93       R5-215378       1144       -       F       Update to EN-DC R17 common section       17.2.0         2021-09       RAN#93       R5-215379       1145       -       F       Update of R15 EN-DC Tx tests       17.2.0         2021-09       RAN#93       R5-215380       1146       -       F       Update of applicability and title for R16 EN-DC Tx tests       17.2.0	2021-09	RAN#93	R5-215294	1136	-	F	Updating 7.3B.2.3 REFSENS testing for DC_7A-20A_n28A	17.2.0
2021-09       RAN#93       R5-215337       1140       -       F       Correction of test CBW for n28 in 6.2B.1.3       17.2.0         2021-09       RAN#93       R5-215376       1142       -       F       Update to EN-DC R15 common section       17.2.0         2021-09       RAN#93       R5-215378       1144       -       F       Update to EN-DC R17 common section       17.2.0         2021-09       RAN#93       R5-215379       1145       -       F       Update of R15 EN-DC Tx tests       17.2.0         2021-09       RAN#93       R5-215380       1146       -       F       Update of applicability and title for R16 EN-DC Tx tests       17.2.0	2021-09	RAN#93	R5-215296	1137	-	F	Editorial correction to clause 7.3B.2.0.3	17.2.0
2021-09       RAN#93       R5-215376       1142       -       F       Update to EN-DC R15 common section       17.2.0         2021-09       RAN#93       R5-215378       1144       -       F       Update to EN-DC R17 common section       17.2.0         2021-09       RAN#93       R5-215379       1145       -       F       Update of R15 EN-DC Tx tests       17.2.0         2021-09       RAN#93       R5-215380       1146       -       F       Update of applicability and title for R16 EN-DC Tx tests       17.2.0	2021-09	RAN#93	R5-215323	1138	-	F	Correction of power control in 38.521-3	17.2.0
2021-09       RAN#93       R5-215378       1144       -       F       Update to EN-DC R17 common section       17.2.0         2021-09       RAN#93       R5-215379       1145       -       F       Update of R15 EN-DC Tx tests       17.2.0         2021-09       RAN#93       R5-215380       1146       -       F       Update of applicability and title for R16 EN-DC Tx tests       17.2.0	2021-09	RAN#93	R5-215337	1140	-	F	Correction of test CBW for n28 in 6.2B.1.3	17.2.0
2021-09       RAN#93       R5-215379       1145       -       F       Update of R15 EN-DC Tx tests       17.2.0         2021-09       RAN#93       R5-215380       1146       -       F       Update of applicability and title for R16 EN-DC Tx tests       17.2.0	2021-09	RAN#93	R5-215376	1142	-	F	Update to EN-DC R15 common section	17.2.0
2021-09 RAN#93 R5-215380 1146 - F Update of applicability and title for R16 EN-DC Tx tests 17.2.0	2021-09	RAN#93	R5-215378	1144	-	F	Update to EN-DC R17 common section	17.2.0
	2021-09	RAN#93	R5-215379	1145	-	F	Update of R15 EN-DC Tx tests	17.2.0
2021-09 RAN#93 R5-215381 1147 - F Updated to title of clause 6.5B.5.x 17.2.0	2021-09	RAN#93	R5-215380	1146	-	F	Update of applicability and title for R16 EN-DC Tx tests	17.2.0
	2021-09	RAN#93	R5-215381	1147	-	F	Updated to title of clause 6.5B.5.x	17.2.0

2021-09	RAN#93	R5-215460	1155	-	F	Correction of 5.4B.1 for channel spacing for intra-band EN-DC carriers	17.2.0
2021-09	RAN#93	R5-215521	1160	-	F	Updates to Editors note for spurious emission CA test case	17.2.0
2021-09	RAN#93	R5-215668	1179	-	F	Correcting references in EN-DC RX test cases	17.2.0
2021-09	RAN#93	R5-215673	1180	-	F	EN-DC including FR2 DL CA up to 8 NR CCs REFSENS measurement uncertainties	17.2.0
2021-09	RAN#93	R5-215804	1181	-	F	Update of 6.5B.2.3 out of band emissions for inter-band EN-DC	17.2.0
2021-09	RAN#93	R5-215832	1162	1	F	EN-DC including FR2 DL CA up to 8 NR CCs REFSENS test cases addition	17.2.0
2021-09	RAN#93	R5-215833	1169	1	F	Measurement Uncertainties and test tolerances for NSA FR2 CA Maximum Output Power and Spectrum Emission Mask	17.2.0
2021-09	RAN#93	R5-215864	1038	1	F	Introduction of Rel-15 EN-DC DC_19A_n78A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-215865	1039	1	F	Introduction of Rel-15 EN-DC DC_19A_n79A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-215866	1041	1	F	Introduction of Rel-15 EN-DC DC_20A_n78A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-215867	1047	1	F	Introduction of Rel-15 EN-DC DC_28A_n79A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-215868	1052	1	F	Update of Rel-15 EN-DC DC_5A_n78A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-215869	1057	1	F	Update of Rel-15 EN-DC DC_25A_n41A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-215870	1069	1	F	Clarification of SA and NSA support in the UE	17.2.0
2021-09	RAN#93	R5-215871	1074	1	F	Addition of 6.4B.1.3A Frequency Error for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215872	1075	1	F	Addition of 6.4B.2.3A.1 Error Vector Magnitude for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215873	1076	1	F	Addition of 6.4B.2.3A.2 Carrier Leakage for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215874	1077	1	F	Addition of 6.4B.2.3A.3 In-band Emissions for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215875	1079	1	F	Addition of 6.5B.2.3A.1 Spectrum emissions mask for Inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215876	1080	1	F	Addition of 6.5B.2.3A.2 Additional Spectrum emissions mask for Inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215877	1081	1	F	Addition of 6.5B.2.3A.3 Adjacent channel leakage ratio for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215878	1082	1	F	Addition of 6.5B.3.3A.1 General Spurious Emissions for Inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215879	1084	1	F	Addition of 6.5B.5.3A Transmit Intermodulation for Inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215880	1095	1	F	Editorial correction to test applicability in 6.2B.1.4_1.1.1	17.2.0
2021-09	RAN#93	R5-215881	1097	1	F	Addition of spurious emission for DC 1A_n78A and 20A_n78A and 28A_n78A	17.2.0
2021-09	RAN#93	R5-215882	1104	1	F	Addition of TC6.3B.2.4D Transmit OFF Power for inter-band EN-DC including FR2 for UL-MIMO	17.2.0

2021-09	RAN#93	R5-215883	1106	1	F	Addition of TC6.3B.3.4D Transmit ON/OFF time mask for inter-band EN-DC including FR2 for UL-MIMO	17.2.0
2021-09	RAN#93	R5-215884	1107	1	F	Addition of TC6.3B.4.4 PRACH Time Mask for inter-band EN-DC including FR2	17.2.0
2021-09	RAN#93	R5-215885	1110	1	F	Update of test applicability for 6.2B.2 MPR and 6.2B.3 A-MPR for inter-band EN-DC	17.2.0
2021-09	RAN#93	R5-215886	1121	1	F	Update of MOP requirements for DC_3A_n3A	17.2.0
2021-09	RAN#93	R5-215887	1131	1	F	Updated EN-DC spur emissions including FR2 editor notes	17.2.0
2021-09	RAN#93	R5-215888	1156	1	F	Addition of test case 6.4B.2.4.5	17.2.0
2021-09	RAN#93	R5-215889	1167	1	F	Message content updates for intra-band contiguous EN-DC additional spectrum emission mask test	17.2.0
2021-09	RAN#93	R5-215890	1168	1	F	Message contents addition for intra-band non-contiguous EN-DC SEM, A-SEM and ACLR test cases	17.2.0
2021-09	RAN#93	R5-215891	1086	1	F	Addition of 7.4B.3A Maximum Input Level for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215892	1087	1	F	Addition of 7.5B.3A ACS for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215893	1088	1	F	Addition of 7.6B.2.3A In-band blocking for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215894	1089	1	F	Addition of 7.6B.4.3A Narrow band blocking for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215895	1090	1	F	Addition of 7.8B.2.3A Wide band Intermodulation for inter-band NEDC within FR1	17.2.0
2021-09	RAN#93	R5-215896	1091	1	F	Addition of 7.9B.3A Spurious Emissions for inter-band NE-DC within FR1	17.2.0
2021-09	RAN#93	R5-215897	1093	1	F	Addition of 7.5B.0.4a Inter-band NE-DC including FR2	17.2.0
2021-09	RAN#93	R5-215898	1133	1	F	Updating 7.3B.2.3 REFSENS testing for DC_3A_n28A-n78A	17.2.0
2021-09	RAN#93	R5-215899	1134	1	F	Updating 7.3B.2.3 REFSENS testing for DC_7A_n28A-n78A	17.2.0
2021-09	RAN#93	R5-215900	1141	1	F	Editors note correction to reference sensitivity for inter-band EN-DC including FR2	17.2.0
2021-09	RAN#93	R5-215926	1161	1	F	Spurious co-existence corrections for band combo DC_8_n41	17.2.0
2021-09	RAN#93	R5-215927	1173	1	F	Update for 6.5B.3.3.1 for Rel 16 combos	17.2.0
2021-09	RAN#93	R5-215928	1143	1	F	Update to EN-DC R16 common section	17.2.0
2021-09	RAN#93	R5-216007	1031	1	F	Introduction of Rel-15 EN-DC DC_1A_n28A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-216008	1036	1	F	Introduction of Rel-15 EN-DC DC_7A_n28A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-216009	1040	1	F	Introduction of Rel-15 EN-DC DC_20A_n28A to spurious emission test cases	17.2.0
2021-09	RAN#93	R5-216010	1058	1	F	Update of Rel-15 EN-DC DC_26A_n77A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-216011	1111	1	F	Cleanup for TS 38.521-3 spurious emission for UE co-existence table for Rel-15	17.2.0
2021-09	RAN#93	R5-216012	1112	1	F	Cleanup for TS 38.521-3 spurious emission for UE co-existence table Rel-16	17.2.0
2021-09	RAN#93	R5-216013	1170	1	F	Update for 6.5B.3.3.1 for Rel 15 combos	17.2.0
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2021-09	RAN#93	R5-216015	1117	1	F	Update of general spurious emissions test requirements for Rel-16 inter-band EN-DC	17.2.0
2021-09	RAN#93	R5-216016	1154	1	F	Update of 6.5B.3.3.2.3 for the requirements of spurious emission band UE co-existence limits for Rel-16	17.2.0
2021-09	RAN#93	R5-216038	1049	1	F	Update of Rel-15 EN-DC DC_1A_n78A in spurious emission test cases	17.2.0
2021-09	RAN#93	R5-216039	1182	1	F	Addition of cl 6.2B.1.3A for RF	17.2.0
2021-09	RAN#93	R5-216093	1132	1	F	Updated editors note to indicate missing LO retrieval RRC framework	17.2.0
2021-09	RAN#93	R5-216094	1128	1	F	Update of reference sensitivity test coverage for 3CC EN-DC configurations	17.2.0
2021-09	RAN#93	R5-216095	1178	1	F	Update to Rel.15 EN-DC FR2 Band Combination Tables	17.2.0
2021-09	RAN#93	R5-216108	1171	1	F	Update for reference sensitivity for DC_48A_n66A	17.2.0
2021-09	RAN#93	R5-216119	1115	1	F	Correction to 6.5B.2.2.1 SEM for intra-band non-contiguous EN-DC	17.2.0
2021-09	RAN#93	R5-216120	1116	1	F	Correction to 6.5B.2.2.3 ACLR for intra-band non-contiguous EN-DC	17.2.0
2021-09	RAN#93	R5-216131	1159	1	F	Spurious co-existence core requirement updates for Dual connectivity including band n28 and other core requirement alignments	17.2.0
2021-12	RAN#94	R5-216518	1184	-	F	6.5B.2.2.1 SEM IBNC update as per TP analysis update	17.3.0
2021-12	RAN#94	R5-216519	1185	-	F	6.5B.2.2.3 ACLR IBNC update as per TP analysis update	17.3.0
2021-12	RAN#94	R5-216919	1189	-	F	Addition of TC6.4B.1.4D Frequency error for inter-band EN-DC including FR2 for UL-MIMO	17.3.0
2021-12	RAN#94	R5-217094	1191	-	F	Update of Reference Sensitivity Test Cases for EN-DC with FR2	17.3.0
2021-12	RAN#94	R5-217116	1192	-	F	FR2 EN-DC Refsens 6 to 8 NR CCs - Editorial correction	17.3.0
2021-12	RAN#94	R5-217117	1193	-	F	UL modulation correction in 7.3B.2.3_1.1	17.3.0
2021-12	RAN#94	R5-217176	1195	-	F	Adding Power Class 1.5 for LTE Band 41and NR Band n41 to Annex N.1 Indication of modified MPR behaviour	17.3.0
2021-12	RAN#94	R5-217232	1199	-	F	Tx Spurious emission-Editorial corrections	17.3.0
2021-12	RAN#94	R5-217295	1202	-	F	Update of 6.5B.2.1.1 SEM test configuration for intra-band contiguous EN-DC	17.3.0
2021-12	RAN#94	R5-217296	1203	-	F	Update of 6.2B.2.1 MPR for intra-band contiguous EN-DC	17.3.0
2021-12	RAN#94	R5-217300	1204	-	F	Addition of reference sensitivity testing for DC_20A_n28A-n78A	17.3.0
2021-12	RAN#94	R5-217305	1206	-	F	Addition of 4Rx reference sensitivity test requirements for DC_3A_n41A	17.3.0
2021-12	RAN#94	R5-217382	1211	-	F	Addition of 6.2E.1.1 MOP for intra-band contiguous V2X operation	17.3.0
2021-12	RAN#94	R5-217383	1212	-	F	Addition of 6.2E.1.2 MOP for intra-band non-contiguous V2X operation	17.3.0
2021-12	RAN#94	R5-217384	1213	-	F	Addition of 6.2E.1.3.1 MOP for inter-band E-UTRA Uu and NR Sidelink operation	17.3.0
2021-12	RAN#94	R5-217385	1214	-	F	Addition of 6.2E.1.3.2 MOP for inter-band NR Uu and E-UTRA V2X Sidelink operation	17.3.0
2021-12	RAN#94	R5-217386	1215	-	F	Addition of 6.2E.2.1 MPR for intra-band V2X operation	17.3.0
2021-12	RAN#94	R5-217387	1216	-	F	Addition of 6.2E.2.2.1 MPR for inter-band E-UTRA Uu and NR Sidelink operation	17.3.0

2021-12	RAN#94	R5-217388	1217	-	F	Addition of 6.2E.2.2.2 MPR for inter-band NR Uu and E-UTRA V2X Sidelink operation	17.3.0
2021-12	RAN#94	R5-217389	1218	-	F	Addition of 6.3E Output power dynamics for V2X	17.3.0
2021-12	RAN#94	R5-217428	1220	-	F	Correction to note of DC_1_n3 and DC_3_n1 in 6.5B.3.3.2	17.3.0
2021-12	RAN#94	R5-217554	1228	-	F	Correction of Reference Sensitivity for DC_28A_n41A	17.3.0
2021-12	RAN#94	R5-217562	1229	-	F	Update of modulation quality for inter-band EN-DC with FR2	17.3.0
2021-12	RAN#94	R5-217610	1230	-	F	Correction to 5G V2X common sections	17.3.0
2021-12	RAN#94	R5-217615	1231	-	F	Addition of R15 EN-DC configurations in clause 5	17.3.0
2021-12	RAN#94	R5-217616	1232	-	F	Correction to EN-DC Tx test cases	17.3.0
2021-12	RAN#94	R5-217617	1233	-	F	Correction to title and test applicability to EN-DC Rx test cases	17.3.0
2021-12	RAN#94	R5-217705	1237	-	F	38.521-3 Beam correspondence Measurement Uncertainties	17.3.0
2021-12	RAN#94	R5-217720	1238	-	F	Introduction of EN-DC FR2 Beam Correspondence Test Case	17.3.0
2021-12	RAN#94	R5-217724	1239	-	F	Update to Rel.17 EN-DC FR2 Band Combination Tables	17.3.0
2021-12	RAN#94	R5-217726	1241	-	F	Update to Rel.15 EN-DC FR2 Band Combination Tables	17.3.0
2021-12	RAN#94	R5-217740	1242	-	F	Correction to DC_1A_n79A spurious emission test case 6.5B.3.3.2	17.3.0
2021-12	RAN#94	R5-217741	1243	-	F	Correction of spurious emission test case 6.5B.3.3.2 for DC_5A-n66A, DC_25A-n41A and DC_19A_n77A	17.3.0
2021-12	RAN#94	R5-218211	1250	-	F	Adding new test case spurious UE coex for inter-band EN-DC including FR2 and editors note updates	17.3.0
2021-12	RAN#94	R5-218243	1207	1	F	Update of 6.5B.3.3.1 general spurious emissions test requirements for inter-band EN-DC	17.3.0
2021-12	RAN#94	R5-218244	1205	1	F	Addition of 4Rx reference sensitivity test requirements for DC_3A_n78A	17.3.0
2021-12	RAN#94	R5-218245	1221	1	F	Correction to test configuration of DC_41A_n78A in 7.3B.2.3	17.3.0
2021-12	RAN#94	R5-218246	1188	1	F	Handling of fallbacks for FR2 CA for EN-DC	17.3.0
2021-12	RAN#94	R5-218247	1210	1	F	Correction of clause 4 for minimum requirements and test applicability rules	17.3.0
2021-12	RAN#94	R5-218271	1197	1	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence	17.3.0
2021-12	RAN#94	R5-218273	1249	1	F	Adding RX requirements for Rel-16 FR1 EN-DC band combinations	17.3.0
2021-12	RAN#94	R5-218274	1234	1	F	Addition of R16 EN-DC configurations in clause 5	17.3.0
2021-12	RAN#94	R5-218275	1240	1	F	Update to Rel.16 EN-DC FR2 Band Combination Tables	17.3.0
2021-12	RAN#94	R5-218293	1208	1	F	Adding UL switching time mask test for inter-band EN-DC	17.3.0
2021-12	RAN#94	R5-218433	1183	1	F	6.2B.2.2 MPR IBNC update as per TP analysis update	17.3.0
2021-12	RAN#94	R5-218434	1236	1	F	Update of test case 6.2B.3.4 EN-DC A-MPR for FR2	17.3.0
2021-12	RAN#94	R5-218455	1200	1	F	Update for EN_DC reference sensitivity_r16	17.3.0
2021-12	RAN#94	R5-218472	1227	1	F	Updating 6.2B.1.3 UE Maximum Output Power for Rel-17 NR interband EN-DC configurations	17.3.0
2021-12	RAN#94	R5-218473	1226	1	F	Updating Rel-17 NR inter-band EN-DC configurations	17.3.0
2021-12	RAN#94	R5-218485	1225	1	F	Clarification on cl 4.5.1 test coverage across 5G NR architecture options for RF	17.3.0
2022-03	RAN#95	R5-220063	1251	-	F	Correction of Test applicability of 6.2B.2.3	17.4.0
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2022-03	RAN#95	R5-220068	1254	-	F	Correction of test config table for 6.3B.3_1.1	17.4.0
2022-03	RAN#95	R5-220069	1255	-	F	Correction of reference section numbers in 6.4B.2.4.5.4.1	17.4.0
2022-03	RAN#95	R5-220070	1256	-	F	Correction of Editor Note and reference section numbers in 6.5B.3.4.2_1	17.4.0
2022-03	RAN#95	R5-220087	1257	-	F	Introduction of new V2X test cases in 7.6E	17.4.0
2022-03	RAN#95	R5-220088	1258	-	F	Introduction of new V2X test cases in 7.7E	17.4.0
2022-03	RAN#95	R5-220089	1259	-	F	Introduction of new V2X test cases in 7.8E	17.4.0
2022-03	RAN#95	R5-220260	1260	-	F	FR1 NSA IBC - ACLR clean up to leverage MPR test definition	17.4.0
2022-03	RAN#95	R5-220275	1261	-	F	Clarifications on 5G NR connectivity options for RF FR1 and FR2	17.4.0
2022-03	RAN#95	R5-220314	1264	-	F	Introduction of Output power requirements for Rel-16 inter-band EN-DC FR1 two band combinations	17.4.0
2022-03	RAN#95	R5-220315	1265	-	F	Introduction of General Spurious emissions requirements for Rel-16 inter-band EN-DC FR1 two band combinations	17.4.0
2022-03	RAN#95	R5-220322	1267	-	F	Adding Reference sensitivity exceptions and MSD test points for Rel-16 inter-band EN-DC FR1 two band combinations	17.4.0
2022-03	RAN#95	R5-220323	1268	-	F	Adding reference sensitivity requirements for Rel-16 inter-band EN-DC FR1 two band combinations	17.4.0
2022-03	RAN#95	R5-220369	1270	-	F	Update general spurious emissions 6.5B.3.3.1 for 4 Rel-17 ENDC combos	17.4.0
2022-03	RAN#95	R5-220371	1271	-	F	Update for 6.5B.3.3.2 Spurious emission band UE co-existence for 4 Rel-17 combos	17.4.0
2022-03	RAN#95	R5-220380	1273	-	F	Introduction of DC_1A-n5A reference sensitivity test requirements	17.4.0
2022-03	RAN#95	R5-220382	1274	-	F	Introduction of DC_3A-n5A reference sensitivity test requirements	17.4.0
2022-03	RAN#95	R5-220384	1275	-	F	Introduction of DC_7A-n5A reference sensitivity test requirements	17.4.0
2022-03	RAN#95	R5-220387	1276	-	F	Introduction of DC_7A-n78A reference sensitivity test requirements	17.4.0
2022-03	RAN#95	R5-220390	1277	-	F	Introduction of DC_28A_n7A-n78A reference sensitivity test requirements	17.4.0
2022-03	RAN#95	R5-220431	1280	-	F	Update to R16 Configuration for DC	17.4.0
2022-03	RAN#95	R5-220432	1281	-	F	Update to R17 Configuration for DC	17.4.0
2022-03	RAN#95	R5-220538	1282	-	F	Correction on test requirements for TC 6.5B.3.3.2	17.4.0
2022-03	RAN#95	R5-220539	1283	-	F	Addition of 6.4E.1 Frequency error for V2X	17.4.0
2022-03	RAN#95	R5-220540	1284	-	F	Addition of 6.4E.2.1 Error Vector Magnitude for V2X	17.4.0
2022-03	RAN#95	R5-220655	1286	-	F	Adding RIB,c for Inter-band NE-DC	17.4.0
2022-03	RAN#95	R5-221698	1289	1	F	Updating on 6.5B.3.3.2 Spurious emission for UE co-existence for inter-band within FR1 including n1	17.4.0
2022-03	RAN#95	R5-220759	1290	-	F	Introduction of maximum output power test requirements for DC_1A_n5A, DC_1A_n7A, DC_3A_n5A, DC_7A_n5A and DC_28A_n7A	17.4.0
2022-03	RAN#95	R5-220766	1291	-	F	Update Tx test cases for DC_n28A_3A, DC_n28A_3C, DC_n28A_39A, DC_n28A_39C	17.4.0
2022-03	RAN#95	R5-220896	1296	-	F	Definition of MTSU for 7.6B.3.3_1.1	17.4.0
2022-03	RAN#95	R5-220902	1298	-	F	Correction to measurement timing for EN-DC combination with FDD and TDD	17.4.0
2022-03	RAN#95	R5-220904	1299	-	F	Correction to test frequency of EN-DC 28_n51 in 7.3B.2.3	17.4.0
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2022-03	RAN#95	R5-220961	1301	-	F	Addition of common uplink configuration for E-UTRA intra-band contiguous CA	17.4.0
2022-03	RAN#95	R5-220967	1305	-	F	Update of 6.2B.1.3 Maximum Output Power for Inter-Band EN-DC	17.4.0
2022-03	RAN#95	R5-220968	1306	-	F	Update of 6.2B.4.1.3 Configured Output Power for Inter-Band EN-DC	17.4.0
2022-03	RAN#95	R5-220976	1308	-	F	Correction to reference sensitivity for intra-band contiguous EN-DC	17.4.0
2022-03	RAN#95	R5-220977	1309	-	F	Correction to Maximum Input Level for intra-band contiguous EN-DC	17.4.0
2022-03	RAN#95	R5-220978	1310	-	F	Correction to Adjacent Channel Selectivity for intra-band contiguous EN-DC	17.4.0
2022-03	RAN#95	R5-220979	1311	-	F	Update of Adjacent Channel Selectivity for intra-band non- contiguous EN-DC	17.4.0
2022-03	RAN#95	R5-220980	1312	-	F	Correction to out-of-band blocking for intra-band contiguous EN-DC	17.4.0
2022-03	RAN#95	R5-220981	1313	-	F	Update of Annex F for Adjacent Channel Selectivity for intra-band EN-DC	17.4.0
2022-03	RAN#95	R5-221053	1314	-	F	Correction of 6.2B.1.1 for intra-band contiguous EN-DC maximum output power	17.4.0
2022-03	RAN#95	R5-221170	1316	-	F	Addition of 6.2B.2.3a MPR for inter-band NE-DC within FR1	17.4.0
2022-03	RAN#95	R5-221171	1317	-	F	Addition of 6.4B.2.3a.4 EVM Equalizer Flatness for inter-band NE-DC within FR1	17.4.0
2022-03	RAN#95	R5-221172	1318	-	F	Addition of 6.2B.4.2.3a TIB,c for Inter-band NE-DC within FR1	17.4.0
2022-03	RAN#95	R5-221268	1323	-	F	Update of E-UTRA configuration	17.4.0
2022-03	RAN#95	R5-221317	1326	-	F	Update for 6.5B.4.2 Additional Spurious Emissions for Intra-band non-contiguous EN-DC	17.4.0
2022-03	RAN#95	R5-221321	1327	-	F	Update for reference sensitivity for EN_DC_r15	17.4.0
2022-03	RAN#95	R5-221325	1328	-	F	Editorial Update for 6.2B.4.2.3.1	17.4.0
2022-03	RAN#95	R5-221329	1330	-	F	Update Ref sense for r16 DC combos	17.4.0
2022-03	RAN#95	R5-221337	1332	-	F	Addition of PC2 ENDC 4 combos into 38.521-3 TC7.3B.2	17.4.0
2022-03	RAN#95	R5-221693	1252	1	F	Correction of Test applicability of 6.2B.3.3	17.4.0
2022-03	RAN#95	R5-221694	1253	1	F	Correction of 6.5B.2.3.3 to include 6.5.2.4.2 of 38.521-1	17.4.0
2022-03	RAN#95	R5-221695	1262	1	F	Update MOP for inter-band NE-DC within FR1	17.4.0
2022-03	RAN#95	R5-221696	1269	1	F	FR2 NSA EVM test case editor notes update	17.4.0
2022-03	RAN#95	R5-221697	1287	1	F	Clarification on clause number of NE-DC for Tx test cases	17.4.0
2022-03	RAN#95	R5-221699	1293	1	F	Correction of ON OFF time mask for inter-band EN-DC including FR2	17.4.0
2022-03	RAN#95	R5-221700	1294	1	F	Definition of MTSU and TT for Intra-band EN-DC additional spurious emissions test cases	17.4.0
2022-03	RAN#95	R5-221701	1295	1	F	Correction to test procedure of FR1 EN-DC Spurious test for EN-DC only capable UE	17.4.0
2022-03	RAN#95	R5-221702	1324	1	F	Editorial correction for 6.5B.3.3 Spurious emission	17.4.0
2022-03	RAN#95	R5-221703	1288	1	F	Clarification on clause number of NE-DC for Rx test cases	17.4.0
2022-03	RAN#95	R5-221704	1331	1	F	Update for 7.3B.2	17.4.0
2022-03	RAN#95	R5-221705	1278	1	F	Regrouping DC Configuration in clause 5	17.4.0
2022-03	RAN#95	R5-221706	1315	1	F	Update of 3.2 and 3.3 on symbols and abbreviations	17.4.0

2022-03	RAN#95	R5-221767	1266	1	F	Introduction of Spurious emissions band UE co-existence	17.4.0
						requirements for Rel-16 inter-band EN-DC FR1 two band combinations	
2022-03	RAN#95	R5-221768	1297	1	F	Correction to test requirement of DC_xxA_n41A in 6.5B.3.3.1	17.4.0
2022-03	RAN#95	R5-221769	1300	1	F	Correction of General Spurious emissions requirements for Rel-16 inter-band EN-DC FR1 two band combinations	17.4.0
2022-03	RAN#95	R5-221770	1320	1	F	Introduction of DC_1A_n5A, DC_1A_n7A, DC_3A_n5A, DC_7A_n5A, DC_28A_n7A to general spurious emission test case	17.4.0
2022-03	RAN#95	R5-221771	1321	1	F	Introduction of DC_1A_n5A, DC_1A_n7A, DC_3A_n5A, DC_7A_n5A, DC_28A_n7A to UE co-existence spurious emission test case	17.4.0
2022-03	RAN#95	R5-221772	1322	1	F	Addition of new CADC MPR TC 6.2B.2.4_1.1	17.4.0
2022-03	RAN#95	R5-221773	1329	1	F	Update for 7.3B.2.0 Min Requirements of Ref sensitivity for EN-DC	17.4.0
2022-03	RAN#95	R5-221883	1272	1	F	Update Tx TC for 4 Rel-17 combos	17.4.0
2022-03	RAN#95	R5-221884	1325	1	F	Update Rx Requirements for 4 Rel-17 ENDC combos	17.4.0
2022-03	RAN#95	R5-221885	1333	1	F	MSD test configurations modification for US inter-band EN-DC combinations with n77	17.4.0
2022-03	RAN#95	R5-221886	1285	1	F	Update NE-DC configurations for DC_n28A_3A, DC_n28A_3C, DC_n28A_39A, DC_n28A_39C	17.4.0
2022-03	RAN#95	R5-221892	1292	1	F	Update of MOP TC for PC2 ENDC configurations	17.4.0
2022-03	RAN#95	R5-221908	1302	1	F	Addition of new test case 6.2B.1.3_1 for Maximum Output Power for inter-band EN-DC with 3 uplink	17.4.0
2022-03	RAN#95	R5-221909	1303	1	F	Addition of new test case 6.2B.4.1.3_1 for Configured Output Power for inter-band EN-DC with 3 uplink	17.4.0
2022-03	RAN#95	R5-221910	1304	1	F	Addition of annex F for test cases for EN-DC configurations with 3 uplink	17.4.0
2022-03	RAN#95	R5-221931	1307	1	F	Addition of transmit power configuration for EN-DC reference sensitivity	17.4.0
2022-06	RAN#96	R5-222192	1335	-	F	Correction of minimum requirement and test requirement of 6.2B.1.3	17.5.0
2022-06	RAN#96	R5-222194	1337	-	F	Correction of reference section numbers in 6.4E and title of 6.4E.2.1.2	17.5.0
2022-06	RAN#96	R5-222195	1338	-	F	Correction of test requirement of 6.2B.2.1	17.5.0
2022-06	RAN#96	R5-222196	1339	-	F	Separation of 6.2B.1.4D into two test cases	17.5.0
2022-06	RAN#96	R5-222197	1340	-	F	Correction of clause numbers in 6.2B.1.3a	17.5.0
2022-06	RAN#96	R5-222344	1353	-	F	6.6B.4 Beam Correspondence test case editor note update	17.5.0
2022-06	RAN#96	R5-222345	1354	-	F	MU and TT definition and clean up in 38.521-3 annex F	17.5.0
2022-06	RAN#96	R5-222421	1355	-	F	Addition of 6.5E.1 Occupied bandwidth for V2X	17.5.0
2022-06	RAN#96	R5-222422	1356	-	F	Addition of 6.5E.2 Out of band emission for V2X	17.5.0
2022-06	RAN#96	R5-222473	1359	-	F	Addition Delta TIB,c for FR1 EN-DC	17.5.0
2022-06	RAN#96	R5-222484	1362	-	F	Editorial correction in 6.2B.4.1.3	17.5.0
2022-06	RAN#96	R5-222486	1363	1-	F	Correction about test configuration in 6.5B.3.3.2	17.5.0
2022-06	RAN#96	R5-222487	1364	-	F	Correction to title of 7.6B.2.4 and editorial correction for Rx test cases	17.5.0
2022-06	RAN#96	R5-222543	1365	-	F	Correction of Refsens CA test case	17.5.0

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2022-06	RAN#96	R5-222700	1367	-	F	Editorial correction to EN-DC test cases	17.5.0
2022-06	RAN#96	R5-222702	1368	-	F	Update to R15 common part and DC configurations in clause 5	17.5.0
2022-06	RAN#96	R5-222703	1369	-	F	Update to R16 Configuration for DC	17.5.0
2022-06	RAN#96	R5-222743	1379	-	F	Update for 7.3B.2.0 Min Requirements of Ref sensitivity for EN-DC	17.5.0
2022-06	RAN#96	R5-222748	1381	-	F	Update 6.5B.3.3.2 for R17 DC_14_n2 and DC_14_n66	17.5.0
2022-06	RAN#96	R5-222829	1382	-	F	Update of 6.2B.1.3_1 UE Maximum Output Power for inter-Band EN-DC with 2 E-UTRA CCs and 1 NR CC	17.5.0
2022-06	RAN#96	R5-222830	1383	-	F	Update of 6.2B.4.1.3_1 Configured Output Power for inter-Band ENDC with 2 E-UTRA CCs and 1 NR CC	17.5.0
2022-06	RAN#96	R5-222884	1386	-	F	Addition of 6.4E.2.3 In-band emissions for V2X	17.5.0
2022-06	RAN#96	R5-223061	1387	-	F	Addition of 6.5B.3.3.1 requirements for NR inter-band EN-DC configurations including n1	17.5.0
2022-06	RAN#96	R5-223231	1389	-	F	Correction to 6.2B.1.3 for UE capability IE for inter-band EN-DC UE maximum output power	17.5.0
2022-06	RAN#96	R5-223245	1391	-	F	Add delta RIBc for inter-band DC_28A_n7A-n78A	17.5.0
2022-06	RAN#96	R5-223658	1341	1	F	Introduction of Output power requirements for DC_1A_n8A, DC_7A_n8A and DC_8A_n28A	17.5.0
2022-06	RAN#96	R5-223659	1342	1	F	Introduction of Allowed maximum configured output power relaxation for DC_1_n5, DC_1_n8, DC_3_n5, DC_7_n5, DC_7_n8 and DC_8_n28	17.5.0
2022-06	RAN#96	R5-223660	1343	1	F	Introduction of General Spurious emissions requirements for DC_1A_n8A, DC_7A_n8A, DC_8A_n28A and DC_20A_n8A	17.5.0
2022-06	RAN#96	R5-223661	1344	1	F	Introduction of Spurious emissions band UE co-existence limits Rel- 16 for DC_1A_n8A, DC_7A_n8A, DC_8A_n28A and DC_20A_n8A	17.5.0
2022-06	RAN#96	R5-223662	1345	1	F	Introduction of Spurious emissions band UE co-existence Test description for DC_1A_n8A, DC_7A_n5A, DC_7A_n8A, DC_8A_n28A and DC_20A_n8A	17.5.0
2022-06	RAN#96	R5-223663	1346	1	F	Introduction of Spurious emissions band UE co-existence Rel-16 Test requirements for DC_1A_n8A, DC_7A_n8A, DC_8A_n28A and DC_20A_n8A	17.5.0
2022-06	RAN#96	R5-223664	1366	1	F	Addition of new CADC MOP TC	17.5.0
2022-06	RAN#96	R5-223665	1371	1	F	Addition of ACLR Test Case for Inter-band EN-DC including FR2 5 NR CCs	17.5.0
2022-06	RAN#96	R5-223666	1372	1	F	Addition of ACLR Test Case for Inter-band EN-DC including FR2 6 NR CCs	17.5.0
2022-06	RAN#96	R5-223667	1373	1	F	Addition of ACLR Test Case for Inter-band EN-DC including FR2 7 NR CCs	17.5.0
2022-06	RAN#96	R5-223668	1374	1	F	Addition of ACLR Test Case for Inter-band EN-DC including FR2 8 NR CCs	17.5.0
2022-06	RAN#96	R5-223669	1375	1	F	Addition of General Spurious Emissions Test Case for Inter-band EN-DC including FR2 5 NR CCs	17.5.0
2022-06	RAN#96	R5-223670	1376	1	F	Addition of General Spurious Emissions Test Case for Inter-band EN-DC including FR2 6 NR CCs	17.5.0
2022-06	RAN#96	R5-223671	1377	1	F	Addition of General Spurious Emissions Test Case for Inter-band EN-DC including FR2 7 NR CCs	17.5.0
2022-06	RAN#96	R5-223672	1378	1	F	Addition of General Spurious Emissions Test Case for Inter-band EN-DC including FR2 8 NR CCs	17.5.0
2022-06	RAN#96	R5-223673	1380	1	F	Update 6.5B.3.3.2 for R16 DC_14_n2 and DC_14_n66	17.5.0

2022-06	RAN#96	R5-223674	1390	1	F	Add delta TIBc for inter-band DC_28A_n7A-n78A	17.5.0
2022-06	RAN#96	R5-223675	1393	1	F	Introduction of Allowed reference sensitivity relaxation for DC_3A-8A_n28A	17.5.0
2022-06	RAN#96	R5-223676	1347	1	F	Introduction of DC_1A-20A_n8A reference sensitivity test requirements	17.5.0
2022-06	RAN#96	R5-223677	1348	1	F	Introduction of DC_3A-7A_n5A reference sensitivity test requirements	17.5.0
2022-06	RAN#96	R5-223678	1349	1	F	Introduction of DC_7A-8A_n3A reference sensitivity test requirements	17.5.0
2022-06	RAN#96	R5-223679	1350	1	F	Introduction of DC_7A-20A_n8A reference sensitivity test requirements	17.5.0
2022-06	RAN#96	R5-223680	1351	1	F	Introduction of DC_7A-28A_n5A reference sensitivity test requirements	17.5.0
2022-06	RAN#96	R5-223681	1360	1	F	Addition Minimum Conformance Requests of REFSENS for FR1 ENDC	17.5.0
2022-06	RAN#96	R5-223703	1385	1	F	Addition of 6.4E.2.2 Carrier leakage for V2X	17.5.0
2022-06	RAN#96	R5-223744	1370	1	F	Update to R17 Configuration for DC	17.5.0
2022-06	RAN#96	R5-223833	1336	1	F	Correction of Transmitter power test requirements for EN-DC within FR1	17.5.0
2022-06	RAN#96	R5-223834	1357	1	F	Editorial correction for 6.3B.8 Power control for EN-DC	17.5.0
2022-06	RAN#96	R5-223835	1358	1	F	Clarifications on Common Uplink Configuration updates	17.5.0
2022-06	RAN#96	R5-223836	1384	1	F	Adding missing configurations in SE co-ex Rel-17 table	17.5.0
2022-09	RAN#97	R5-224152	1398	-	F	Introduction of Allowed maximum configured output power relaxation for DC_3_n8	17.6.0
2022-09	RAN#97	R5-224153	1399	-	F	Introduction of General Spurious emissions requirements for DC_3A_n8A	17.6.0
2022-09	RAN#97	R5-224154	1400	-	F	Introduction of Spurious emissions band UE co-existence limits Rel- 16 for DC_3A_n8A	17.6.0
2022-09	RAN#97	R5-224156	1402	-	F	Introduction of Spurious emissions band UE co-existence Rel-16 Test requirements for DC_3A_n8A	17.6.0
2022-09	RAN#97	R5-224159	1403	-	F	Introduction of DC_3A-7A-20A_n8A reference sensitivity 2-band fallback test requirements	17.6.0
2022-09	RAN#97	R5-224160	1404	-	F	Introduction of DC_3A-7A-20A_n8A reference sensitivity 3-band fallback test requirements	17.6.0
2022-09	RAN#97	R5-224161	1405	-	F	Introduction of Allowed reference sensitivity relaxation for DC_3A-7A-20A_n8A	17.6.0
2022-09	RAN#97	R5-224308	1408	-	F	FR2 NSA EVM test case editor notes update	17.6.0
2022-09	RAN#97	R5-224437	1412	-	F	Addition of new CADC MOP TC	17.6.0
2022-09	RAN#97	R5-224622	1413	-	F	Addition of test requirement for E-UTRA cell of PC2 UE in 6.2B.4.1	17.6.0
2022-09	RAN#97	R5-224626	1414	-	F	Correction to test frequency definition for DC combination including n28	17.6.0
2022-09	RAN#97	R5-224629	1415	-	F	Correction to E-UTRA output power in intra-band contiguous EN-DC Rx test cases	17.6.0
2022-09	RAN#97	R5-224653	1417	-	F	Correction of reference to test configuration table for intra band contiguous EN-DC test case	17.6.0
2022-09	RAN#97	R5-224809	1418	-	F	Editorial correction for 6.2B.1.3 Maximum output power for Interband EN-DC within FR1	17.6.0

2022-09	RAN#97	R5-224936	1423	-	F	Corrections on test configuration table in spurious emission band UE co-existence for Rel-15 inter-band EN-DC configuration	17.6.0
2022-09	RAN#97	R5-224939	1425	-	F	Introduction of DC_2A-66A_n41A reference sensitivity test requirements	17.6.0
2022-09	RAN#97	R5-224942	1426	-	F	Corrections on general spurious emission test requirements for DC_2A_n5A	17.6.0
2022-09	RAN#97	R5-224943	1427	-	F	Update of Rel-16 EN-DC configuration DC_2A_n41A in spurious emission test cases	17.6.0
2022-09	RAN#97	R5-224946	1428	-	F	Update of DC_8A_n41A, DC_3A_n41A, DC_25A_n41A, DC_26A_n41A, DC_39A_n41A and DC_40A_n41A in spurious emission test cases	17.6.0
2022-09	RAN#97	R5-224950	1429	-	F	Update of Rel-16 EN-DC configuration DC_48A_n5A in spurious emission test cases	17.6.0
2022-09	RAN#97	R5-224952	1430	-	F	Update of Rel-16 EN-DC configuration DC_48A_n66A in spurious emission test cases	17.6.0
2022-09	RAN#97	R5-224954	1431	-	F	Update of Rel-16 EN-DC configuration DC_66A_n41A in spurious emission test cases	17.6.0
2022-09	RAN#97	R5-225000	1434	-	F	Update to R16 Configuration for DC	17.6.0
2022-09	RAN#97	R5-225001	1435	-	F	Update to R17 Configuration for DC	17.6.0
2022-09	RAN#97	R5-225005	1436	-	F	Editorial correction to reference table ID to TC6.2B.1.3	17.6.0
2022-09	RAN#97	R5-225006	1437	-	F	Update to test case 6.5B.3.3.2	17.6.0
2022-09	RAN#97	R5-225031	1438	-	F	Add EN-DC Enhanced Beam Correspondence Test Case	17.6.0
2022-09	RAN#97	R5-225661	1394	1	F	New test case addition: 6.2B.4.1.4_1 Configured Output Power with Power Boost for Inter-Band EN-DC including FR2 (1 NR CC).	17.6.0
2022-09	RAN#97	R5-225662	1395	1	F	Measurement uncertainties and test tolerances for test case 6.2B.4.1.4_1 Configured Output Power with Power Boost for Inter-Band EN-DC including FR2 (1 NR CC)	17.6.0
2022-09	RAN#97	R5-225668	1409	1	F	PC1 MU - General Editor notes update in 38.521-3 FR2 Rx tests	17.6.0
2022-09	RAN#97	R5-225669	1396	1	F	Rel-15 Beam correspondence test tolerance definition	17.6.0
2022-09	RAN#97	R5-225678	1410	1	F	Update of FR2 5CC to 8CCs Transmission Test Cases	17.6.0
2022-09	RAN#97	R5-225705	1397	1	F	Introduction of Output power requirements for DC_3A_n8A	17.6.0
2022-09	RAN#97	R5-225706	1401	1	F	Introduction of Spurious emissions band UE co-existence Test description for DC_3A_n8A	17.6.0
2022-09	RAN#97	R5-225707	1419	1	F	Update 6.5B.3.3.2 for DC_5A_n2A	17.6.0
2022-09	RAN#97	R5-225708	1424	1	F	Corrections on test configuration table in spurious emission band UE co-existence for Rel-16 inter-band EN-DC configuration	17.6.0
2022-09	RAN#97	R5-225709	1421	1	F	Update for reference sensitivity for DC_48A_n66A	17.6.0
2022-09	RAN#97	R5-225736	1422	1	F	Update for reference sensitivity for DC_5A_n77A	17.6.0
2022-09	RAN#97	R5-225799	1406	1	F	Correction of Power Class 2 test requirements in 6.2B.1.3.5 for Interband EN-DC FDD and TDD Duplex-mode	17.6.0
2022-09	RAN#97	R5-225800	1411	1	F	Replacing the word LTE by E-UTRA in description of exception requirement	17.6.0
2022-09	RAN#97	R5-225801	1439	1	F	Removal of brackets for DCI format for Tx test cases	17.6.0
2022-09	RAN#97	R5-225802	1445	1	F	Introduction of test section for UL MIMO EN-DC MPR with FR1 and FR2	17.6.0
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2022-09	RAN#97	R5-225803	1446	1	F	Introduction of test section for UL MIMO EN-DC A-MPR with FR1 and FR2	17.6.0
2022-09	RAN#97	R5-225804	1447	1	F	Introduction of test tase for UL MIMO EN-DC MPR in FR2	17.6.0
2022-09	RAN#97	R5-225805	1448	1	F	Introduction of test tase for UL MIMO EN-DC A-MPR in FR2	17.6.0
2022-09	RAN#97	R5-225806	1449	1	F	P-MaxUE-FR1-r15 correction for PC2 ENDC test cases	17.6.0
2022-09	RAN#97	R5-225807	1420	1	F	Update for ref sensitivity for R15_combos	17.6.0
2022-09	RAN#97	R5-225808	1441	1	F	Correction of reference sensitivity test case	17.6.0
2022-09	RAN#97	R5-225881	1440	1	F	Addition of new test case additional spurious for FR2	17.6.0
2022-12	RAN#98	R5-226296	1451		F	Move 6.5B.4.4 which is in front of 6.5B.3.5 to be after 6.5B.4.3	17.7.0
2022-12	RAN#98	R5-226297	1452		F	Clause styles and clause number correction in 6.6B.5	17.7.0
2022-12	RAN#98	R5-226480	1454		F	Introduction of reference sensitivity for three bands within FR1	17.7.0
2022-12	RAN#98	R5-226744	1462		F	Clean-up pending R15 configurations in clause 5.3	17.7.0
2022-12	RAN#98	R5-226746	1464		F	Clean-up pending R16 configurations in clause 5	17.7.0
2022-12	RAN#98	R5-226747	1465		F	Clean-up pending R17 configurations in clause 5	17.7.0
2022-12	RAN#98	R5-226749	1467		F	Clean-up pending R16 configurations in clause 6	17.7.0
2022-12	RAN#98	R5-226750	1468		F	Clean-up pending R17 configurations in clause 6	17.7.0
2022-12	RAN#98	R5-226751	1469		F	Clean-up pending R15 configurations in clause 7	17.7.0
2022-12	RAN#98	R5-226752	1470		F	Clean-up pending R16 configurations in clause 7	17.7.0
2022-12	RAN#98	R5-226754	1471		F	Editorial correction to the wording used for NR FRx	17.7.0
2022-12	RAN#98	R5-226761	1472		F	Editorial correction to editor note of completed TC6.3B.1.4_1.x minimum output power for EN-DC FR2	17.7.0
2022-12	RAN#98	R5-226815	1473		F	Update of FR2 Test Case 6.4B.2.4.4	17.7.0
2022-12	RAN#98	R5-226886	1474		F	New test case addition: 6.4B.2.4.1a Error Vector Magnitude with Power Boost for inter-band EN-DC including FR2 (1 NR CC)	17.7.0
2022-12	RAN#98	R5-226887	1475		F	New test case addition: 6.5B.2.4.1a Spectrum emissions mask with Power Boost for Inter-band EN-DC including FR2 (1 NR CC)	17.7.0
2022-12	RAN#98	R5-226888	1476		F	New test case addition: 6.5B.3.4.1a General Spurious Emissions with Power Boost for Inter-band including FR2 (1 NR CC)	17.7.0
2022-12	RAN#98	R5-226889	1477		F	New test case addition: 6.5B.3.4.2a Spurious emission band UE co- existence with Power Boost for Inter-band including FR2 (1 NR CC)	17.7.0
2022-12	RAN#98	R5-226890	1478		F	New test case addition: 6.5B.4.4a Additional Spurious Emissions with Power Boost for Inter-band including FR2 (1 NR CC)	17.7.0
2022-12	RAN#98	R5-226939	1479		F	New test case addition: 6.2B.2.4a UE maximum output power reduction enhancements for Inter-Band EN-DC including FR2 (1 NR CC)	17.7.0
2022-12	RAN#98	R5-226941	1480		F	Measurement uncertainties and test tolerances for mpr-PowerBoost tests 6.4B.2.4.1a, 6.5B.2.4.1a, 6.5B.3.4.1a, 6.5B.3.4.2a and 6.5B.4.4a	17.7.0
2022-12	RAN#98	R5-226994	1481		F	Measurement uncertainties and test tolerances for test 6.2B.2.4a UE maximum output power reduction enhancements for Inter-Band ENDC including FR2 (1 NR CC)	17.7.0
2022-12	RAN#98	R5-227085	1495		F	Correction to test description of 6.2B.1.4D.1	17.7.0
2022-12	RAN#98	R5-227284	1498		F	Corrections on reference sensitivity test requirements for EN-DC configurations	17.7.0

2022-12	RAN#98	R5-227285	1499		F	Corrections on reference sensitivity test requirements on TT for DC_28A_n7A-n78A	17.7.0
2022-12	RAN#98	R5-227286	1500		F	Corrections on reference sensitivity test requirements on TT for R15 EN-DC configurations	17.7.0
2022-12	RAN#98	R5-227287	1501		F	Corrections on REFSEN for inter-band CA configurations	17.7.0
2022-12	RAN#98	R5-227289	1503		F	Corrections on test configuration table in spurious emission band UE co-existence for Rel-17 inter-band EN-DC configuration	17.7.0
2022-12	RAN#98	R5-227290	1504		F	Corrections on general description for MSD test frequencies	17.7.0
2022-12	RAN#98	R5-227786	1456	1	F	7.3B.2 cleaning up_R16	17.7.0
2022-12	RAN#98	R5-227787	1466	1	F	Clean-up pending R15 configurations in clause 6	17.7.0
2022-12	RAN#98	R5-227788	1458	1	F	Update Ref sense for R15 combos	17.7.0
2022-12	RAN#98	R5-227789	1507	1	F	Updated to clause 5 for simultaneous RxTx clarification	17.7.0
2022-12	RAN#98	R5-227790	1453	1	F	Update some frequency selections in test configuration table	17.7.0
2022-12	RAN#98	R5-227791	1482	1	F	Addition of new test case 6.3B.1.4_1.4 Minimum output power for inter-band EN-DC including FR2 - 5 NR CCs	17.7.0
2022-12	RAN#98	R5-227792	1483	1	F	Addition of new test case 6.3B.1.4_1.5 Minimum output power for inter-band EN-DC including FR2 - 6 NR CCs	17.7.0
2022-12	RAN#98	R5-227793	1484	1	F	Addition of new test case 6.3B.1.4_1.6 Minimum output power for inter-band EN-DC including FR2 - 7 NR CCs	17.7.0
2022-12	RAN#98	R5-227794	1485	1	F	Addition of new test case 6.3B.1.4_1.7 Minimum output power for inter-band EN-DC including FR2 - 8 NR CCs	17.7.0
2022-12	RAN#98	R5-227795	1486	1	F	Addition of new test case 6.4B.2.4.1_1.4 Error Vector Magnitude for inter-band EN-DC including FR2 - 5 NR CCs	17.7.0
2022-12	RAN#98	R5-227796	1487	1	F	Addition of new test case 6.4B.2.4.1_1.5 Error Vector Magnitude for inter-band EN-DC including FR2 - 6 NR CCs	17.7.0
2022-12	RAN#98	R5-227797	1488	1	F	Addition of new test case 6.4B.2.4.1_1.6 Error Vector Magnitude for inter-band EN-DC including FR2 - 7 NR CCs	17.7.0
2022-12	RAN#98	R5-227798	1489	1	F	Addition of new test case 6.4B.2.4.1_1.7 Error Vector Magnitude for inter-band EN-DC including FR2 - 8 NR CCs	17.7.0
2022-12	RAN#98	R5-227799	1490	1	F	Addition of new test case 6.4B.2.4.2_1.4 Carrier Leakage for interband EN-DC including FR2 - 5 NR CCs	17.7.0
2022-12	RAN#98	R5-227800	1491	1	F	Addition of new test case 6.4B.2.4.2_1.5 Carrier Leakage for interband EN-DC including FR2 - 6 NR CCs	17.7.0
2022-12	RAN#98	R5-227801	1492	1	F	Addition of new test case 6.4B.2.4.2_1.6 Carrier Leakage for interband EN-DC including FR2 - 7 NR CCs	17.7.0
2022-12	RAN#98	R5-227802	1493	1	F	Addition of new test case 6.4B.2.4.2_1.7 Carrier Leakage for interband EN-DC including FR2 - 8 NR CCs	17.7.0
2022-12	RAN#98	R5-227803	1455	1	F	Introduction of spurious emissions test cases for 18A_n77A and 18A_n78A	17.7.0
2022-12	RAN#98	R5-227804	1497	1	F	Corrections on MOP band edge relaxation for intra-band contiguous and non-contiguous EN-DC band combinations	17.7.0
2022-12	RAN#98	R5-227952	1508	1	F	Updates to EN-DC Enhanced Beam Corr test 6.6B.5	17.7.0
2022-12	RAN#98	R5-227966	1450	1	F	PC1 FR2 - Editor notes updates in 38.521-3	17.7.0
2022-12	RAN#98	R5-228032	1496	1	F	Additions to the clarification on intra-band contiguous and non- contiguous EN-DC configurations	17.7.0
2022-12	RAN#98	R5-228046	1461	1	F	Clean-up pending R15 configurations in clause 5.2	17.7.0

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2022-12	RAN#98	R5-228047	1463	1	F	Clean-up pending R15 configurations in clause 5.5	17.7.0

## History

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