

# ETSI TS 138 522 V19.1.0 (2025-10)



**5G;  
NR;**

**User Equipment (UE) conformance specification;  
Applicability of radio transmission, radio reception and radio  
resource management test cases  
(3GPP TS 38.522 version 19.1.0 Release 19)**



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

3GPP TS 38.521-1 [1]: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 Standalone;

3GPP TS 38.521-2 [2]: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Range 2 Standalone;

3GPP TS 38.521-3 [3]: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios;

3GPP TS 38.521-4 [4]: NR; User Equipment conformance specification; Radio transmission and reception; Part 4: Performance;

3GPP TS 38.521-5 [12]: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 5: Satellite access Radio Frequency (RF) and performance

**3GPP TS 38.522: NR; User Equipment (UE) conformance specification; Applicability of RF and RRM test cases;**

3GPP TS 38.533 [5]: NR; User Equipment (UE) conformance specification; Radio resource management;

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# 1 Scope

The present document specifies the recommended applicability statement and completion status for the test cases included in 3GPP TS 38.521-1 [1], TS 38.521-2 [2], TS 38.521-3 [3], TS 38.521-4 [4], TS 38.521-5 [12] and TS 38.533 [5]. These applicability statements are based on the features implemented in the UE.

Special conformance testing functions can be found in 3GPP TS 38.509 [6] and the common test environments are included in 3GPP TS 38.508-1 [7]. Common implementation conformance statement (ICS) proforma can be found in 3GPP TS 38.508-2 [8].

The present document is valid for UE implemented according to 3GPP releases starting from Release 15 up to the Release indicated on the cover page of the present document.

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# 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 unless the context in which the reference is made suggests a different Release is relevant (information on the applicable release in a particular context can be found in e.g. test case title, description or applicability, message description or content).

- [1] 3GPP TS 38.521-1: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 Standalone
- [2] 3GPP TS 38.521-2: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Range 2 Standalone
- [3] 3GPP 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
- [4] 3GPP TS 38.521-4: NR; User Equipment conformance specification; Radio transmission and reception; Part 4: Performance
- [5] 3GPP TS 38.533: NR; User Equipment (UE) conformance specification; Radio resource management
- [6] 3GPP TS 38.509: 5GS; Special conformance testing functions for User Equipment (UE)
- [7] 3GPP TS 38.508-1: 5GS; User Equipment (UE) conformance specification; Part 1: Common test environment
- [8] 3GPP TS 38.508-2: 5GS; User Equipment (UE) conformance specification; Part 2: Common Implementation Conformance Statement (ICS) proforma
- [9] 3GPP TR 21.905: Vocabulary for 3GPP Specifications
- [10] 3GPP TS 36.521-2: Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Implementation Conformance Statement (ICS)
- [11] 3GPP TS 38.331: NR; Radio Resource Control (RRC) protocol specification
- [12] 3GPP TS 38.521-5: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 5: Satellite access Radio Frequency (RF) and performance

## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [9] 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 [9].

**DL\_nCC:** DL\_nCC(*table\_index*) includes all supported *n*-carrier CA/DC configurations in Table *table\_index* in TS 38.508-2 [8].

**DL\_NR\_nCC:** DL\_NR\_nCC(*table\_index*) includes all supported DC configurations with *n*-carrier NR DL CA configuration in Table *table\_index* in TS 38.508-2 [8].

**EIRP(Link=Link angle, Meas=Link angle):** measurement of the UE such that the link angle is aligned with the measurement angle. EIRP (indicator to be measured) can be replaced by EIS, Frequency, EVM, carrier Leakage, In-band emission and OBW. Beam peak search grids, TX beam peak direction, and RX beam peak direction can be selected to describe Link.

**EIRP(Link=Link angle, Meas=beam peak direction):** measurement of the EIRP of the UE such that the measurement angle is aligned with the beam peak direction within an acceptable measurement error uncertainty.

**Implementation Conformance Statement (ICS):** statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented

**ICS proforma:** document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS

**Implementation extra Information for Testing (IXIT):** A statement made by a supplier or implementer of an UEUT which contains or references all of the information (in addition to that given in the ICS) related to the UEUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the UEUT

**Inter-band carrier aggregation:** Carrier aggregation of component carriers in different operating bands.

NOTE: Carriers aggregated in each band can be contiguous or non-contiguous.

**Intra-band contiguous carrier aggregation:** Contiguous carriers aggregated in the same operating band.

**Intra-band non-contiguous carrier aggregation:** Non-contiguous carriers aggregated in the same operating band.

**IXIT proforma:** A document, in the form of a questionnaire, which when completed for an UEUT becomes an IXIT

**Protocol Implementation Conformance Statement (PICS):** An ICS for an implementation or system claimed to conform to a given protocol specification

**Protocol Implementation eXtra Information for Testing (PIXIT):** An IXIT related to testing for conformance to a given protocol specification

**Static conformance review:** A review of the extent to which the static conformance requirements are claimed to be supported by the UEUT, by comparing the answers in the ICS(s) with the static conformance requirements expressed in the relevant specification(s)

**TRP(Link=Link angle):** measurement of the TRP of the UE such that the measurement angle is aligned with the beam peak direction within an acceptable measurement uncertainty. TX beam peak direction and RX beam peak direction can be selected to describe Link.

NOTE: For requirements based on EIRP/EIS, the radiated interface boundary is associated to the far-field region

**UL:** UL(*table\_index*) includes all supported CA Configurations where at least one UL CA configuration was declared in column "Supported CA Bandwidth Class(es) in UL" in Table *table\_index* in TS 38.508-2 [8].

**UL\_nCC:** UL\_nCC(*table\_index*) includes all supported CA Configurations where at least one *n*-carrier UL CA configuration was declared in column "Supported CA Bandwidth Class(es) in UL" in Table *table\_index* in TS 38.508-2 [8].

**UL\_NR\_nCC:** UL\_NR\_nCC(*table\_index*) includes all supported DC Configurations where at least one DC configuration with *n*-carrier NR UL CA configuration was declared in column "Supported EN-DC Bandwidth Class(es) in UL" in Table *table\_index* in TS 38.508-2 [8].

**ULTxSwitching:** ULTxSwitching(*table\_index*) includes all supported CA/DC/SUL Configurations where at least one uplink band pair was declared in column "Supported ULTxSwitching Band Pair" in Table *table\_index* in TS 38.508-2 [8].

## 3.2 Symbols

No specific symbols have been identified so far.

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [9] 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 [9].

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

|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| 5GS        | 5G System                                                                                           |
| ACLR       | Adjacent Channel Leakage Ratio                                                                      |
| AWGN       | Additive White Gaussian Noise                                                                       |
| BFD        | Beam Failure Detection                                                                              |
| BPSK       | Binary Phase Shift Keying                                                                           |
| BWP        | Bandwidth Part                                                                                      |
| CA         | Carrier Aggregation                                                                                 |
| CBW        | Channel Bandwidth                                                                                   |
| CC         | Component Carrier                                                                                   |
| CCA        | Clear Channel Assessment                                                                            |
| CMR        | Channel Measurement Resource                                                                        |
| CQI        | Channel Quality Indicator                                                                           |
| CSI        | Channel State Information                                                                           |
| CSI-RS     | CSI Reference Signal                                                                                |
| DAPS       | Dual Active Protocol Stack                                                                          |
| DC         | Dual Connectivity                                                                                   |
| DCI        | Downlink Control Information                                                                        |
| DL         | Downlink                                                                                            |
| DRX        | Discontinuous Reception                                                                             |
| EIRP       | Effective Isotropic Radiated Power                                                                  |
| E-UTRA     | Evolved UTRA                                                                                        |
| EVM        | Error Vector Magnitude                                                                              |
| FDD        | Frequency Division Duplex                                                                           |
| EN-DC      | E-UTRA/NR Dual Connectivity                                                                         |
| FR1        | Frequency Range 1 (410 MHz - 7125 MHz)                                                              |
| FR2        | Frequency Range 2 (24250 MHz - 52600 MHz)                                                           |
| HST        | High Speed Train                                                                                    |
| ICS        | Implementation Conformance Statement                                                                |
| IMR        | Interference Measurement Resource                                                                   |
| IXIT       | Implementation eXtra Information for Testing                                                        |
| L1         | Layer 1                                                                                             |
| L1-RSRP    | Layer 1 RSRP                                                                                        |
| L1 SL-RSRP | Layer 1 Sidelink RSRP which corresponds to PSCCH-RSRP and/or PSSCH-RSRP                             |
| MAC        | Medium Access Control                                                                               |
| MCG        | Master Cell Group                                                                                   |
| MPR        | Allowed maximum power reduction                                                                     |
| NR         | New Radio                                                                                           |
| NSA        | Non-Standalone, a mode of operation where operation of another radio is assisted with another radio |
| NTN        | Non-Terrestrial Network                                                                             |

|          |                                                                 |
|----------|-----------------------------------------------------------------|
| PCell    | Primary Cell                                                    |
| PDCCH    | Physical Downlink Control Channel                               |
| PDSCH    | Physical Downlink Shared Channel                                |
| PIXIT    | Protocol Implementation eXtra Information for Testing           |
| PMI      | Pre-coding Matrix Indicator                                     |
| PRACH    | Physical Random Access Channel                                  |
| PSCell   | Primary SCG Cell                                                |
| QAM      | Quadrature Amplitude Modulation                                 |
| RF       | Radio Frequency                                                 |
| RLM      | Radio Link Monitoring                                           |
| RRC      | Radio Resource Control                                          |
| RRM      | Radio Resource Management                                       |
| RSRP     | Reference Signal Received Power                                 |
| RSRQ     | Reference Signal Received Quality                               |
| SA       | Standalone                                                      |
| SC       | Single Carrier                                                  |
| SCC      | Secondary Component Carrier                                     |
| SCell    | Secondary Cell                                                  |
| SCG      | Secondary Cell Group                                            |
| SCS      | System Conformance Statement / Subcarrier Spacing               |
| SDL      | Supplementary Downlink                                          |
| SFN      | System Frame Number                                             |
| SFTD     | SFN and Frame Timing Difference                                 |
| SINR     | Signal to Interference plus Noise Ratio                         |
| SL       | Sidelink                                                        |
| SL-MIMO  | Sidelink-Multiple Antenna Transmission                          |
| SRS      | Sounding Reference Signal                                       |
| SRS-RSRP | Sounding Reference Signal based Reference Signal Received Power |
| SSB      | Synchronization Signal Block                                    |
| SS-RSRP  | Synchronization Signal based RSRP                               |
| SS-RSRQ  | Synchronization Signal based RSRQ                               |
| SS-SINR  | Synchronization Signal based SINR                               |
| SUL      | Supplementary UpLink                                            |
| TC       | Test Case                                                       |
| TDD      | Time Division Duplex                                            |
| TRP      | Total Radiated Power                                            |
| TxD      | Tx Diversity                                                    |
| UEUT     | User Equipment Under Test                                       |
| UL       | Uplink                                                          |
| ULFPTx   | Uplink Full Power Transmission                                  |
| UL MIMO  | Uplink Multiple Antenna transmission                            |
| UTRA     | UMTS Terrestrial Radio Access                                   |
| V2X      | Vehicle to Everything                                           |

## 4 Recommended test case applicability

The applicability of each individual test is identified in the tables 4.1.1-1 / 4.1.2-1 / 4.1.3-1 / 4.1.4-1 / 4.2-1 / 4.2-2 / 4.2-3 / 4.2-4 / 4.2-5 / 4.2-6 / 4.2-7 / 4.2-8 / 4.2-9 / 4.2-10 / 4.3.1-1 / 4.3.2-1. This is just a recommendation based on the purpose for which the test case was written.

The applicability of every test is formally expressed by the use of Boolean expressions that are based on parameters (ICS). The parameters (ICS) included in TS 38.508-2 [8] are used in the test case applicability condition without reference. Parameters (ICS) specified in TS 36.521-2 [10] shall be referred with proper reference. The parameters (ICS) shall be set according to the capabilities of the UE on the operating band / band combination under test.

Selection criteria of tested bands and tested CA configurations for each applicable test is formally expressed using group theory based on parameters (ICS) included in annex A of TS 38.508-2 [8] without reference.

Additional information related to the Test Case (TC), e.g. affecting its dynamic behaviour or its execution may be provided as well.

The columns in tables 4.1.1-1 / 4.1.2-1 / 4.1.3-1 / 4.1.4-1 / 4.2-1 / 4.2-2 / 4.2-3 / 4.2-4 / 4.2-5 / 4.2-6 / 4.2-7 / 4.2-8 / 4.2-9 / 4.2-10 / 4.3.1-1 / 4.3.2-1 have the following meaning:

#### Clause

The clause column indicates the clause number in TS 38.521-1 [1], TS 38.521-2 [2], TS 38.521-3 [3], TS 38.521-4 [4], TS 38.521-5 [12] and TS 38.533 [5] that contains the test body.

#### TC Title

The TC Title column describes the name of the test and contains the clause title of the clause in TS 38.521-1 [1], TS 38.521-2 [2], TS 38.521-3 [3], TS 38.521-4 [4], TS 38.521-5 [12] and TS 38.533 [5] that contains the test body.

#### Release

The release column indicates the earliest release from which each test case is applicable. It may also indicate a range of releases or a single release to which a test case is applicable.

#### Applicability - Condition

The following notations are used for the applicability column:

|     |                                                                                                                                                                                                                                                                                                                                         |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R   | recommended - the test case is recommended to all terminals supporting NR                                                                                                                                                                                                                                                               |
| O   | optional - the test case is optional                                                                                                                                                                                                                                                                                                    |
| N/A | not applicable - in the given context, the test case is not recommended.                                                                                                                                                                                                                                                                |
| Ci  | conditional - the test is recommended ("R") or not ("N/A") depending on the support of other items. "i" is an integer identifying a unique conditional status expression which is defined in Table 4.0-1. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." is used to avoid ambiguities. |

#### Applicability - Comment

This comment column contains a verbal description of the condition included in the applicability column.

#### Tested Bands / CA/DC Configurations / Subtest Selection

This column defines a set of bands / CA/DC Configurations the test is to be run for, if the test is applicable. If the set is empty, the test is considered as not applicable.

The following notations are used in the tested bands selection column:

|      |                                                                                                                                                  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Di   | Derive the set based on Band Selection Criteria Di defined in table 4.0-2.                                                                       |
| Ei   | Derive the set based on CA/DC Configurations Selection Criteria Ei defined in table 4.0-3.                                                       |
| Fi   | Derive the set based on Subtest Selection Criteria Fi defined in table 4.0-4.                                                                    |
| TBD  | Band selection not defined at this time, in the meantime test all Bands / CA/DC Configurations                                                   |
| Text | For more complex selection criteria, or if the criteria are already specified somewhere else in the spec, text reference to the clause is given. |

#### Branch

This column contains indication if the test case may perform differently depending on the UE capabilities.

NOTE 1: Void.

NOTE 2: Void.

#### Additional Information

This column contains indication if the test case may perform differently depending on the UE capabilities and the measurement execution.

This column also contains indication of the completion status of the test case.

## 4.0 Test case conditions and selection criteria

For the purposes of the present document, the applicability of conformance test cases conditions given in Table 4.0-1 apply. The tested bands selection criteria given in Table 4.0-2 apply. The tested CA/DC configuration selection criteria given in Table 4.0-3 apply. The subtest selection criteria given in Table 4.0-4 apply. The ICS proformas used in Table 4.0-1, Table 4.0-2, Table 4.0-3 and Table 4.0-4 are defined in TS 38.508-2 [8] unless otherwise stated.

Table 4.0-1: Applicability of conformance test cases conditions

|       |                                                                                                                                                                 |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C001  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 THEN R ELSE N/A                                                                                         |
| C001a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7/3 THEN R ELSE N/A                                                                         |
| C001b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                         |
| C001c | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.1-2/2e OR A.4.3.1-2/12) THEN R ELSE N/A                                                      |
| C001d | Void                                                                                                                                                            |
| C001e | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                      |
| C001f | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND (A.4.3.11-1/1 OR A.4.3.11-1/3) THEN R ELSE N/A                                      |
| C001g | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.1-7/5 OR ((A.4.3.1-7/2 OR A.4.3.1-7/3) AND (A.4.3.2-1/84 OR A.4.3.2-1/84A))) THEN R ELSE N/A |
| C001h | Void                                                                                                                                                            |
| C001i | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2A.1-1/2 THEN R ELSE N/A                                                                      |
| C001j | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2A.1-1/3 THEN R ELSE N/A                                                                      |
| C001k | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2A.1-1/4 THEN R ELSE N/A                                                                      |
| C001l | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (NOT A.4.3.12-1/2) THEN R ELSE N/A                                                                  |
| C001m | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.4-1/16 THEN R ELSE N/A                                                          |
| C001n | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.7-1/65 THEN R ELSE N/A                                                                        |
| C001o | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND A.4.4-1/17 THEN R ELSE N/A                                                                                         |
| C001p | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND A.4.4-1/17 AND A.4.3.2-1/91 THEN R ELSE N/A                                                                        |
| C001q | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND A.4.4-1/17 AND A.4.3.2-1/92 THEN R ELSE N/A                                                                        |
| C001r | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/104 OR A.4.3.2-1/105 OR A.4.3.2-1/106 OR A.4.3.2-1/107) THEN R ELSE N/A                  |
| C001s | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/114 THEN R ELSE N/A                                                                       |
| C001w | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.2-1/187 THEN R ELSE N/A                                                       |
| C002  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) THEN R ELSE N/A                                                            |
| C003  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/14B THEN R ELSE N/A                                                                       |
| C003a | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/14B THEN R ELSE N/A                                                                                      |
| C003b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/58 OR A.4.3.2-1/59 OR (A.4.3.2-1/232 AND A.4.3.2-1/233)) THEN R ELSE N/A                 |
| C004  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-2/1 AND (NOT A.4.3.2-1/84A) THEN R ELSE N/A |
| C004a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2B.1.0a.1-2/1 THEN R ELSE N/A                                                                 |
| C005  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.1-2/4 AND A.4.3.2A.1-1/1 AND A.4.1-3/1 THEN R ELSE N/A                           |
| C006  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 THEN R ELSE N/A                                                                                                        |
| C006a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                        |
| C006b | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/31a THEN R ELSE N/A                                                                                      |
| C006c | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                      |
| C006d | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-1/2 THEN R ELSE N/A                                                      |
| C006e | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-1/3 THEN R ELSE N/A                                                      |
| C006f | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-1/4 THEN R ELSE N/A                                                      |
| C006g | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-1/5 THEN R ELSE N/A                                                      |
| C006h | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-1/6 THEN R ELSE N/A                                                      |
| C006i | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-1/7 THEN R ELSE N/A                                                      |
| C006j | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND NOT (A.4.3.2-1/22A OR A.4.3.2-1/22B) THEN R ELSE N/A                                                               |
| C006k | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.3.2-1/22A OR A.4.3.2-1/22B) THEN R ELSE N/A                                                                   |
| C006l | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/56A THEN R ELSE N/A                                                                                      |
| C006m | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/56 AND A.4.3.2-1/78 THEN R ELSE N/A                                                                      |
| C006n | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.3.2-1/130 OR A.4.3.2-1/131) THEN R ELSE N/A                                                                   |
| C006o | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/25A THEN R ELSE N/A                                                                                      |
| C006p | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.1-4A/7 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                         |
| C006q | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/2 THEN R ELSE N/A                                                                                                        |
| C006r | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/92 THEN R ELSE N/A                                                                                       |
| C006s | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.6-1/92 THEN R ELSE N/A                                                                       |
| C006w | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/38 THEN R ELSE N/A                                                                                       |

|       |                                                                                                                                              |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------|
| C006x | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/139 THEN R ELSE N/A                                                                   |
| C007  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/22 THEN R ELSE N/A                                                                    |
| C008  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND NOT A.4.3.2-1/22 AND NOT (A.4.3.2-1/22A OR A.4.3.2-1/22B) THEN R ELSE N/A                       |
| C008a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND NOT A.4.3.2-1/22 AND (A.4.3.2-1/22A OR A.4.3.2-1/22B) THEN R ELSE N/A                           |
| C009  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/1 AND A.4.3.2B.2.0-2/1 THEN R ELSE N/A                                                 |
| C009a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/1 AND A.4.3.2B.2.0-1/1 THEN R ELSE N/A                                                 |
| C009z | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/1 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/25 THEN R ELSE N/A                                |
| C010  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/2 AND A.4.3.2B.2.0-2/1 THEN R ELSE N/A                                                 |
| C010a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/2 AND A.4.3.2B.2.0-1/1 THEN R ELSE N/A                                                 |
| C010z | Void                                                                                                                                         |
| C011  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2/1 THEN R ELSE N/A                                                 |
| C011a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-1/1 THEN R ELSE N/A                                                 |
| C011b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2A/1 THEN R ELSE N/A                                                |
| C011c | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-1A/1 THEN R ELSE N/A                                                |
| C011d | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2/2 AND A.4.3.2B.2.0-2A/1 THEN R ELSE N/A                           |
| C011z | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2A/1 AND A.4.3.2-1/25 THEN R ELSE N/A                               |
| C012  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2/1 THEN R ELSE N/A                                                 |
| C012a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-1A/1 THEN R ELSE N/A                                                |
| C012b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/2 THEN R ELSE N/A                                                |
| C012c | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/3 THEN R ELSE N/A                                                |
| C012d | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/4 THEN R ELSE N/A                                                |
| C012e | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-1A/2 THEN R ELSE N/A                                                |
| C012f | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/31a THEN R ELSE N/A                               |
| C012g | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-1A/3 THEN R ELSE N/A                                                |
| C012h | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-1A/4 THEN R ELSE N/A                                                |
| C012i | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/5 THEN R ELSE N/A                                                |
| C012j | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/6 THEN R ELSE N/A                                                |
| C012k | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/7 THEN R ELSE N/A                                                |
| C012l | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/8 THEN R ELSE N/A                                                |
| C012m | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/2 AND A.4.3.2-1/25 THEN R ELSE N/A                               |
| C012n | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/3 AND A.4.3.2-1/25 THEN R ELSE N/A                               |
| C012o | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/4 AND A.4.3.2-1/25 THEN R ELSE N/A                               |
| C012p | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/14B THEN R ELSE N/A                               |
| C012q | IF A.4.1-1/2 AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/1 AND A.4.3.2-1/25A THEN R ELSE N/A                                             |
| C012w | IF A.4.1-1/2 AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/1 AND A.4.3.2-1/38 THEN R ELSE N/A                                              |
| C012z | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2A/1 AND A.4.3.2-1/25 THEN R ELSE N/A                               |
| C013  | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (A.4.1-4/3 OR A.4.1-4/4) THEN R ELSE N/A                           |
| C014  | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/4) THEN R ELSE N/A |
| C015  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                    |
| C015b | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/6 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A    |
| C015c | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/66 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A   |
| C015d | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.9-1/3 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A    |
| C015e | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 AND A.4.3.2-1/140 THEN R ELSE N/A  |
| C015f | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/242 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A  |
| C015g | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/243 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A  |

|       |                                                                                                                                                                                                                                                                                       |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C015x | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.9-1/1 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                                                                                             |
| C015y | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/33 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                                                                                            |
| C016  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                                                                             |
| C016b | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/6 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                                                             |
| C016c | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/66 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                                                            |
| C016d | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.9-1/3 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                                                             |
| C016e | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 AND A.4.3.2-1/140 THEN R ELSE N/A                                                                                                                                           |
| C016f | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/242 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                                                           |
| C016g | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/243 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                                                           |
| C016x | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.9-1/1 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                                                             |
| C016y | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/33 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                                                            |
| C017  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                                                                                                                                            |
| C017b | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) AND A.4.3.2-1/6 THEN R ELSE N/A                                                                                                                                            |
| C017c | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) AND A.4.3.2-1/66 THEN R ELSE N/A                                                                                                                                           |
| C017d | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) AND A.4.3.9-1/3 THEN R ELSE N/A                                                                                                                                            |
| C017e | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) AND A.4.3.2-1/140 THEN R ELSE N/A                                                                                                                                          |
| C017g | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2A.1-1/1 AND (NOT A.4.3.9-1/2 AND (A.4.3.1-7a/2 OR A.4.3.1-7a/3)) THEN R ELSE N/A                                                                                                                                   |
| C017h | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2A.1-1/2 AND (NOT A.4.3.9-1/2 AND (A.4.3.1-7a/2 OR A.4.3.1-7a/3)) THEN R ELSE N/A                                                                                                                                   |
| C017i | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2A.1-1/3 AND (NOT A.4.3.9-1/2 AND (A.4.3.1-7a/2 OR A.4.3.1-7a/3)) THEN R ELSE N/A                                                                                                                                   |
| C017j | Void                                                                                                                                                                                                                                                                                  |
| C017k | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) AND A.4.3.2-1/242 THEN R ELSE N/A                                                                                                                                          |
| C017l | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) AND A.4.3.2-1/243 THEN R ELSE N/A                                                                                                                                          |
| C017x | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) AND A.4.3.9-1/1 THEN R ELSE N/A                                                                                                                                            |
| C017y | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) AND A.4.3.2-1/33 THEN R ELSE N/A                                                                                                                                           |
| C017z | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.2-1/33 THEN R ELSE N/A                                                                                                                                           |
| C018  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/9 THEN R ELSE N/A                                                                                                                                                                                               |
| C019  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) THEN R ELSE N/A                                                                                                                                                            |
| C019b | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.2-1/6 THEN R ELSE N/A                                                                                                                                            |
| C019c | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.2-1/66 THEN R ELSE N/A                                                                                                                                           |
| C019d | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND (A.4.3.9-4b/38 OR A.4.3.9-4b/41 OR A.4.3.9-4b/48 OR A.4.3.9-4b/77 OR A.4.3.9-4b/78 OR A.4.3.9-4b/79 OR A.4.3.9-4b/34 OR A.4.3.9-4b/39 OR A.4.3.9-4b/40)) AND A.4.3.9-1/3 THEN R ELSE N/A |
| C019e | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.2-1/140 THEN R ELSE N/A                                                                                                                                          |
| C019f | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/41 AND A.4.3.2-1/140 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) THEN R ELSE N/A                                                                                                                         |
| C019g | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.2-1/242 THEN R ELSE N/A                                                                                                                                          |
| C019h | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.2-1/243 THEN R ELSE N/A                                                                                                                                          |

|       |                                                                                                                                                                                                                        |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C019x | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.9-1/1 THEN R ELSE N/A                                                                             |
| C019y | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.11-1/2 THEN R ELSE N/A                                                                            |
| C020  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND (A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) THEN R ELSE N/A                                                                                                                    |
| C021  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 THEN R ELSE N/A                                                                                                                                    |
| C021a | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                    |
| C021b | IF A.4.1-1/1 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 THEN R ELSE N/A                                                                                                                      |
| C021c | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.11-1/6 THEN R ELSE N/A                                                                                                                   |
| C021d | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.11-1/7 THEN R ELSE N/A                                                                                                                   |
| C021e | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.6-1/79 THEN R ELSE N/A                                                                                                   |
| C022  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 THEN R ELSE N/A                                                                                                                                                              |
| C022a | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                              |
| C022b | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/56A THEN R ELSE N/A                                                                                                                                            |
| C022e | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.6-1/79 THEN R ELSE N/A                                                                                                                             |
| C022m | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/56 AND A.4.3.2-1/78 THEN R ELSE N/A                                                                                                                            |
| C022n | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND (A.4.3.2-1/130 OR A.4.3.2-1/131) THEN R ELSE N/A                                                                                                                         |
| C023  | IF A.4.1-4/5 AND A.4.1-3/2 THEN R ELSE N/A                                                                                                                                                                             |
| C023a | IF A.4.1-4/5 AND A.4.1-3/2 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                                             |
| C024  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 THEN R ELSE N/A                                                                                                                                                               |
| C025  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 THEN R ELSE N/A                                                    |
| C025a | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND A.4.3.5-1/1 THEN R ELSE N/A                                    |
| C025b | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND (A.4.3.11-1/1 OR A.4.3.11-1/4) THEN R ELSE N/A                 |
| C025c | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND A.4.3.5-1/1 AND (A.4.3.11-1/1 OR A.4.3.11-1/4) THEN R ELSE N/A |
| C025d | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND A.4.3.11-1/5 THEN R ELSE N/A                                   |
| C025e | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.11-1/5 THEN R ELSE N/A                   |
| C025f | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND A.4.1-2/7 AND A.4.3.6-1/61 THEN R ELSE N/A                     |
| C025g | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND A.4.1-2/8 AND A.4.3.6-1/62 THEN R ELSE N/A                     |
| C026  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/11 THEN R ELSE N/A                                                                                                                   |
| C027  | Void                                                                                                                                                                                                                   |
| C028  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/1 AND A.4.3.6-1/11 THEN R ELSE N/A                                                                                                                                             |
| C029  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/1 AND A.4.3.2-1/9 THEN R ELSE N/A                                                                                                                                              |
| C030  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/9 THEN R ELSE N/A                                                                                                                    |
| C030a | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/9 THEN R ELSE N/A                                                                                                                                              |
| C031  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                |
| C031a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.6-1/54 THEN R ELSE N/A                                                               |
| C031b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/3 AND A.4.1-4/7 AND A.4.3.6-1/55 THEN R ELSE N/A                                                                                                                 |
| C031c | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.1-4A/6 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                                                             |
| C031d | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.2-1/157 THEN R ELSE N/A                                                              |
| C031e | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.6-1/54 AND A.4.3.2-1/245 THEN R ELSE N/A                                             |
| C031f | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.2-1/246 THEN R ELSE N/A                                                              |
| C032  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND (A.4.1-2/3 OR A.4.1-2/5) THEN R ELSE N/A                                                                                                       |
| C033  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/2 THEN R ELSE N/A                                                                                |
| C034  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/6 THEN R ELSE N/A                                                                                                                                |
| C034a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/6 AND A.4.3.7-1/65 THEN R ELSE N/A                                                                                                               |
| C035  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/6 THEN R ELSE N/A                                                                                                                    |

|       |                                                                                                                                                                                  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C036  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/3 THEN R ELSE N/A                                          |
| C037  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/41 THEN R ELSE N/A                                                                                         |
| C037a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/41 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                         |
| C037b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/41 AND A.4.3.5-1/1 AND A.4.3.6-1/79 THEN R ELSE N/A                                                        |
| C037c | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/41 AND A.4.3.7-1/6 THEN R ELSE N/A                                                                         |
| C038  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.6-1/41 THEN R ELSE N/A                                  |
| C038a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.6-1/41 AND A.4.3.5-1/1 THEN R ELSE N/A                  |
| C039  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4/5 OR A.4.1-4/7) AND A.4.1-5/1 AND A.4.3.6-1/41 THEN R ELSE N/A                                 |
| C040  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.6-1/41 THEN R ELSE N/A                                                 |
| C041  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 THEN R ELSE N/A                                                          |
| C041a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.5-1/1 THEN R ELSE N/A                                          |
| C041b | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.5-1/1 THEN R ELSE N/A                                                         |
| C042  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.2-1/34 AND A.4.3.6-1/41 THEN R ELSE N/A                 |
| C042a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.5-1/1 THEN R ELSE N/A |
| C042b | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.5-1/1 THEN R ELSE N/A                |
| C043  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND (A.4.3.6-1/43 OR A.4.3.6-1/44) THEN R ELSE N/A                                                           |
| C043a | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/34 AND A.4.3.6-1/41a AND A.4.3.5-1/1 THEN R ELSE N/A                                                                     |
| C044  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/42 THEN R ELSE N/A                                                                                         |
| C045  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) THEN R ELSE N/A                                                         |
| C046  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/3 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 ) THEN R ELSE N/A                                                        |
| C047  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/4 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) THEN R ELSE N/A                                                         |
| C048  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/2 AND A.4.1-4/1 THEN R ELSE N/A                                                                                     |
| C049  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/3 AND A.4.1-4/1 THEN R ELSE N/A                                                                                     |
| C050  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7/3 AND A.4.3.2-1/36 THEN R ELSE N/A                                                                                        |
| C051  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2A.1-2/1 AND A.4.3.2-1/37 THEN R ELSE N/A                                                       |
| C051a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2A.1-2/1 AND A.4.3.2-1/37 AND A.4.3.6-1/80 THEN R ELSE N/A                                      |
| C051b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2A.1-2/1 AND A.4.3.2-1/127 THEN R ELSE N/A                                                      |
| C051c | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2A.1-2/1 AND A.4.3.2-1/127 AND A.4.3.6-1/80 THEN R ELSE N/A                                     |
| C051d | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/5) AND A.4.3.2A.1-2/2 AND A.4.3.2-1/37 THEN R ELSE N/A                                       |
| C051e | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/5) AND A.4.3.2A.1-2/2 AND A.4.3.2-1/37 AND A.4.3.6-1/80 THEN R ELSE N/A                      |
| C051f | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/5) AND A.4.3.2A.1-2/2 AND A.4.3.2-1/127 THEN R ELSE N/A                                      |
| C051g | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/5) AND A.4.3.2A.1-2/2 AND A.4.3.2-1/127 AND A.4.3.6-1/80 THEN R ELSE N/A                     |
| C052  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.11-1/1 OR A.4.3.11-1/3) THEN R ELSE N/A                                                                       |
| C052a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.11-1/8 THEN R ELSE N/A                                                                                         |
| C052b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.11-1/6 THEN R ELSE N/A                                                                                         |
| C052c | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.11-1/7 THEN R ELSE N/A                                                                                         |
| C053  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-2/1 THEN R ELSE N/A                                                                       |

|       |                                                                                                                                                                                                                                     |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C054  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-2/2 THEN R ELSE N/A                                                                                                                          |
| C055  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-2/3 THEN R ELSE N/A                                                                                                                          |
| C056  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-2/4 THEN R ELSE N/A                                                                                                                          |
| C057  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-2/5 THEN R ELSE N/A                                                                                                                          |
| C058  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-2/6 THEN R ELSE N/A                                                                                                                          |
| C059  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4) AND A.4.3.2A.1-2/7 THEN R ELSE N/A                                                                                                                          |
| C060  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/14B THEN R ELSE N/A                                                                                                                                                          |
| C061  | IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) THEN R ELSE N/A                                                                                                                                   |
| C061a | IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                                                |
| C061b | IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2A.1-1/2 THEN R ELSE N/A                                                                                                                |
| C062c | IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.9-1/1 THEN R ELSE N/A                                                                                                                   |
| C063  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND (A.4.1-4/3 OR A.4.1-4/2) AND A.4.3.2B.2.0-1A/2 THEN R ELSE N/A                                                                                                                        |
| C064  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND (A.4.1-4/3 OR A.4.1-4/2) AND A.4.3.2B.2.0-1A/3 THEN R ELSE N/A                                                                                                                        |
| C064a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND (A.4.1-4/3 OR A.4.1-4/2) AND A.4.3.2B.2.0-1A/4 THEN R ELSE N/A                                                                                                                        |
| C064b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND (A.4.1-4/3 OR A.4.1-4/2) AND A.4.3.2B.2.0-1A/5 THEN R ELSE N/A                                                                                                                        |
| C065  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) THEN R ELSE N/A                    |
| C065a | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) AND A.4.3.2A.1-1/1 THEN R ELSE N/A |
| C065b | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) THEN R ELSE N/A                                                        |
| C065c | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND (A.4.3.2-1/42b OR A.4.3.2-1/43b) THEN R ELSE N/A                                                                                                                                      |
| C065d | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND (A.4.3.2-1/24B OR A.4.3.2-1/24C) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                                      |
| C066  | IF A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) THEN R ELSE N/A                                                |
| C066a | IF A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                             |
| C066b | IF A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) THEN R ELSE N/A                                                                                    |
| C066c | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/2 AND (A.4.3.2-1/42b OR A.4.3.2-1/43b) THEN R ELSE N/A                                                                                                                                       |
| C066d | IF A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/24B OR A.4.3.2-1/24C) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                                                                  |
| C066e | IF A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/24B OR A.4.3.2-1/24C) AND A.4.3.2A.1-1/2 THEN R ELSE N/A                                                                                                                                  |
| C066f | IF A.4.1-2/7 AND A.4.1-3/1 AND ((A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44) OR (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a)) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) AND A.4.3.7-1/65 THEN R ELSE N/A                           |
| C066g | IF A.4.1-2/7 AND A.4.1-3/1 AND ((A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44) OR (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a)) AND A.4.3.7-1/65 THEN R ELSE N/A                                                               |
| C067  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.1-3/2 THEN R ELSE N/A                                                                                                    |
| C067a | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.1-3/2 AND A.4.3.2-1/157 THEN R ELSE N/A                                                                                  |
| C068  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND [10] A.4.6-1/1 AND A.4.1-3/2 THEN R ELSE N/A                                                                                                                              |
| C068a | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND [10] A.4.6-1/1 AND A.4.1-3/2 AND A.4.3.2-1/158 THEN R ELSE N/A                                                                                                            |
| C069  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/6 THEN R ELSE N/A                                                                                                                                                           |
| C070  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/41 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                                          |
| C071  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/41 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                          |

|       |                                                                                                                                                                                     |
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| C072  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/41 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                         |
| C073  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/41 AND A.4.3.1-7a/3 THEN R ELSE N/A                                                               |
| C074  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/39 AND A.4.3.2-1/40 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                         |
| C075  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/39 AND A.4.3.2-1/40 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                         |
| C076  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/39 AND A.4.3.2-1/40 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                        |
| C077  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/39 AND A.4.3.2-1/40 AND A.4.3.1-7a/3 THEN R ELSE N/A                                              |
| C078  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND A.4.1-4A/1 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                              |
| C079  | IF A.4.1-1/3 AND A.4.1-2/7 THEN R ELSE N/A                                                                                                                                          |
| C079a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-1/3 AND A.4.1-2/7 AND A.4.3.2E.1-1/2 THEN R ELSE N/A                                                                                          |
| C079b | IF A.4.1-1/3 AND A.4.1-2/7 AND A.4.3.10-1/25 THEN R ELSE N/A                                                                                                                        |
| C079c | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-1/3 AND A.4.1-2/7 AND (A.4.3.2E.1-1/2 OR A.4.3.2E.1-1/3) THEN R ELSE N/A                                                                      |
| C079d | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-1/3 AND A.4.1-2/7 AND A.4.3.2E.1-1/3 THEN R ELSE N/A                                                                                          |
| C079e | IF (((A.4.1-1/1 OR A.4.1-1/2) AND [10]A.4.1-1/10) OR (([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.1-1/3)) AND A.4.1-2/7 AND A.4.3.2E.1-1/5 THEN R ELSE N/A                             |
| C080  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.1-1/2 AND A.4.1-2/8 THEN R ELSE N/A                                                                                                     |
| C080a | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.1-1/2 AND A.4.1-2/8 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                     |
| C081  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND (A.4.1-3/2 OR A.4.1-3/5) AND (A.4.3.6-1/46 OR A.4.3.6-1/47) THEN R ELSE N/A                                                                 |
| C081a | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND (A.4.1-3/2 OR A.4.1-3/5) AND ([10]A.4.4-1a/5 OR [10]A.4.4-1b/5) AND (A.4.3.6-1/46 OR A.4.3.6-1/47) THEN R ELSE N/A                          |
| C082  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/63 AND A.4.3.2-1/65 THEN R ELSE N/A                                                               |
| C082a | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND A.4.3.5-1/1 THEN R ELSE N/A                                               |
| C082b | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND A.4.3.2-1/139 THEN R ELSE N/A                                             |
| C083  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND A.4.3.2-1/65 THEN R ELSE N/A                                              |
| C083a | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.5-1/1 THEN R ELSE N/A                              |
| C084  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/63 AND A.4.3.2-1/65 THEN R ELSE N/A                                                                           |
| C084a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND A.4.3.5-1/1 THEN R ELSE N/A                                                           |
| C085  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND A.4.3.2-1/65 THEN R ELSE N/A                                                          |
| C085a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.5-1/1 THEN R ELSE N/A                                          |
| C085b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.5-1/1 AND A.4.3.2-1/139 THEN R ELSE N/A                        |
| C086  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-2/7 THEN R ELSE N/A                 |
| C086a | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-2/7 AND A.4.3.5-1/1 THEN R ELSE N/A |
| C086b | IF ((A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-2/6 AND A.4.1-2/7 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) THEN R ELSE N/A                                  |
| C086c | IF ((A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-2/6 AND A.4.1-2/7 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.5-1/1 THEN R ELSE N/A                  |
| C086d | IF ((A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.6-1/47 THEN R ELSE N/A                               |
| C087  | Void                                                                                                                                                                                |
| C088  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND (NOT A.4.3.9-1/2 AND NOT A.4.3.1-7a/2) AND A.4.3.5-1/1 AND A.4.3.5-1/5 THEN R ELSE N/A     |
| C089  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND (NOT A.4.3.9-1/2 AND NOT A.4.3.1-7a/3) AND A.4.3.5-1/1 AND A.4.3.5-1/5 THEN R ELSE N/A     |
| C090  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/2 AND A.4.3.5-1/1 AND A.4.3.5-1/5 THEN R ELSE N/A                            |
| C091  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/3 AND A.4.3.5-1/1 AND A.4.3.5-1/5 THEN R ELSE N/A                            |

|       |                                                                                                                                                                                                                                      |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C092  | IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.5-1/1 AND A.4.3.5-1/5 THEN R ELSE N/A                                                                                                    |
| C093  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/45 THEN R ELSE N/A                                                                                                                                             |
| C094  | IF ((A.4.1-1/1 AND A.4.1-1/1) OR (A.4.1-1/1 AND A.4.1-1/2) OR (A.4.1-1/2 AND A.4.1-1/1) OR (A.4.1-1/2 AND A.4.1-1/2)) AND A.4.1-3/1 AND A.4.3.6-1/45 THEN R ELSE N/A                                                                 |
| C095  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/45 THEN R ELSE N/A                                                                                                                                                            |
| C095a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/54 AND A.4.3.7-1/19 AND A.4.4-1/16 THEN R ELSE N/A                                                                                                                            |
| C096  | IF ((A.4.1-1/1 AND [10]A.4.1-1/3) OR (A.4.1-1/2 AND [10]A.4.1-1/3)) AND A.4.1-2/7 AND A.4.1-3/1 THEN R ELSE N/A                                                                                                                      |
| C097  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-2/7 AND A.4.1-3/2 AND A.4.3.5-1/1 AND (A.4.3.11-1/1 OR A.4.3.11-1/3) THEN R ELSE N/A |
| C098  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND A.4.3.5-1/1 AND (A.4.3.11-1/1 OR A.4.3.11-1/3) THEN R ELSE N/A                                                                                                            |
| C099  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.11-1/2 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                                           |
| C099a | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.11-1/2 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                           |
| C100  | IF A.4.1-1/3 AND A.4.1-2/7 AND A.4.3.10-1/3 THEN R ELSE N/A                                                                                                                                                                          |
| C101  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.8-1/9 THEN R ELSE N/A                                                                                                                                              |
| C102  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.8-1/16 THEN R ELSE N/A                                                                                                                                             |
| C103  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.8-1/15 AND A.4.3.8-1/18 THEN R ELSE N/A                                                                                                              |
| C104  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.8-1/17 AND A.4.3.8-1/18 THEN R ELSE N/A                                                                                                              |
| C105  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.8-1/11 THEN R ELSE N/A                                                                                                                                             |
| C105a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/207 THEN R ELSE N/A                                                                                                                                            |
| C105b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.8-1/11 AND A.4.3.8-1/26 AND A.4.3.6-1/76 THEN R ELSE N/A                                                                                                           |
| C106  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.8-1/11 THEN R ELSE N/A                                                                                                                                             |
| C106a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.8-1/11 AND A.4.3.2-1/207 THEN R ELSE N/A                                                                                                                           |
| C107  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.8-1/15 THEN R ELSE N/A                                                                                                                                             |
| C108  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.8-1/17 THEN R ELSE N/A                                                                                                                                             |
| C109  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.8-1/15 AND A.4.3.8-1/18 THEN R ELSE N/A                                                                                                                            |
| C110  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.8-1/17 AND A.4.3.8-1/18 THEN R ELSE N/A                                                                                                                            |
| C111  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/31 AND A.4.3.2-1/57 THEN R ELSE N/A                                                                                                                            |
| C111a | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND A.4.4-1/17 AND A.4.3.2-1/31 AND A.4.3.2-1/57 THEN R ELSE N/A                                                                                                                            |
| C112  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/31 AND A.4.3.2-1/57 AND (A.4.1-2/3 OR A.4.1-2/5) THEN R ELSE N/A                                                                                               |
| C113  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/53 AND A.4.3.2-1/56 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                          |
| C113a | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/53 AND A.4.3.2-1/56 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                          |
| C113b | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/53 AND A.4.3.2-1/56 AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/2 THEN R ELSE N/A                                                                           |
| C113c | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/53 AND A.4.3.2-1/56 AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/3 THEN R ELSE N/A                                                                           |
| C114  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/54 AND A.4.3.2-1/56 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                          |
| C114a | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/54 AND A.4.3.2-1/56 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                          |
| C114b | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/54 AND A.4.3.2-1/56 AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/2 THEN R ELSE N/A                                                                           |
| C114c | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/54 AND A.4.3.2-1/56 AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/3 THEN R ELSE N/A                                                                           |
| C115  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/55 AND A.4.3.2-1/56 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                          |
| C115a | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/55 AND A.4.3.2-1/56 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                          |
| C115b | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/55 AND A.4.3.2-1/56 AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/2 THEN R ELSE N/A                                                                           |

|       |                                                                                                                                                                                                                        |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C115c | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/55 AND A.4.3.2-1/56 AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/3 THEN R ELSE N/A                                                             |
| C116  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/61 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                             |
| C117  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/61 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                             |
| C118  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/61 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                                                            |
| C119  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/61 AND A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                  |
| C120  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/12 AND A.4.3.2-1/39 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                            |
| C121  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/62 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                             |
| C122  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/12 AND A.4.3.2-1/39 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                            |
| C123  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/62 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                             |
| C124  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/12 AND A.4.3.2-1/39 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                                           |
| C125  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/12 AND A.4.3.2-1/39 AND A.4.3.1-7a/3 THEN R ELSE N/A                                                                                 |
| C126  | IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/3 THEN R ELSE N/A                                                                                                      |
| C126a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2A/1 AND A.4.3.2-1/37 THEN R ELSE N/A                                                                                           |
| C127  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.11-1/2 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                                                            |
| C127a | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2A.1-1/1 AND A.4.3.11-1/12 AND ((NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) OR (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3)) THEN R ELSE N/A |
| C128  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/67 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                             |
| C129  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/67 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                             |
| C130  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/67 AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/2 THEN R ELSE N/A                                                                              |
| C131  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/67 AND NOT A.4.3.9-1/2 AND A.4.3.1-7a/3 THEN R ELSE N/A                                                                              |
| C132  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/71 AND A.4.3.2-1/76 THEN R ELSE N/A                                                                                                              |
| C132a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/71 AND A.4.3.2-1/76 AND A.4.3.7-1/65 THEN R ELSE N/A                                                                                             |
| C133  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/74 THEN R ELSE N/A                                                                                                                               |
| C133a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/74 AND A.4.3.7-1/65 THEN R ELSE N/A                                                                                                              |
| C134  | IF A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/71 AND A.4.3.2-1/72 THEN R ELSE N/A                                                                                                               |
| C134a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/71 AND A.4.3.2-1/72 AND A.4.3.7-1/65 THEN R ELSE N/A                                                                                             |
| C135  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND A.4.3.2-1/71 AND A.4.3.2-1/76 THEN R ELSE N/A                                                                                                               |
| C136  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND A.4.3.2-1/73 THEN R ELSE N/A                                                                                                                                |
| C137  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND A.4.3.2-1/71 AND A.4.3.2-1/75 THEN R ELSE N/A                                                                                                               |
| C138  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/71 AND A.4.3.2-1/76 THEN R ELSE N/A                                                                                                                             |
| C139  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/74 THEN R ELSE N/A                                                                                                                                              |
| C140  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/71 AND A.4.3.2-1/72 THEN R ELSE N/A                                                                                                                             |
| C141  | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND A.4.3.2-1/71 AND A.4.3.2-1/76 THEN R ELSE N/A                                                                                  |
| C141a | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.2-1/71 AND A.4.3.2-1/76 THEN R ELSE N/A                                                                               |
| C141b | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/71 AND A.4.3.2-1/76 THEN R ELSE N/A                                                                                               |
| C142  | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.2-1/73 THEN R ELSE N/A                                                                                   |

|       |                                                                                                                                                                                                                                        |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C142a | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/74 THEN R ELSE N/A                                                                                                                                |
| C143  | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.2-1/71 AND A.4.3.2-1/75 THEN R ELSE N/A                                                                                  |
| C143a | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/71 AND A.4.3.2-1/75 THEN R ELSE N/A                                                                                                               |
| C144  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.2-1/71 AND A.4.3.2-1/76 THEN R ELSE N/A                                                                                                              |
| C144a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/71 AND A.4.3.2-1/76 THEN R ELSE N/A                                                                                                                                             |
| C145  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/74 THEN R ELSE N/A                                                                                                                                               |
| C145a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.2-1/73 THEN R ELSE N/A                                                                                                                                              |
| C146  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/71 AND A.4.3.2-1/72 THEN R ELSE N/A                                                                                                                              |
| C146a | IF A.4.1-1/1 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.2-1/71 AND A.4.3.2-1/75 THEN R ELSE N/A                                                                                                                             |
| C147  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/64 AND A.4.3.2-1/77 THEN R ELSE N/A                                                                                                                                             |
| C148  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.2-1/64 AND A.4.3.2-1/77 THEN R ELSE N/A                                                                                                                             |
| C148a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.2-1/64 AND A.4.3.2-1/77 AND A.4.3.2-1/139 THEN R ELSE N/A                                                                                                           |
| C149  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/64 AND A.4.3.2-1/77 THEN R ELSE N/A                                                                                                                                            |
| C150  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.2-1/64 AND A.4.3.2-1/77 THEN R ELSE N/A                                                                                                                            |
| C151  | Void                                                                                                                                                                                                                                   |
| C152  | Void                                                                                                                                                                                                                                   |
| C152a | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/56 AND A.4.3.2-1/78 AND A.4.3.2A.1-1/1 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                     |
| C152b | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2A.1-1/1 AND A.4.3.11-1/12 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                     |
| C153  | Void                                                                                                                                                                                                                                   |
| C154  | Void                                                                                                                                                                                                                                   |
| C154a | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/56 AND A.4.3.2-1/78 AND A.4.3.2A.1-1/1 AND ((NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) OR (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3)) THEN R ELSE N/A |
| C155  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/56 AND A.4.3.2-1/78 AND A.4.3.1-7a/3 THEN R ELSE N/A                                                                                                 |
| C156  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/79 THEN R ELSE N/A                                                                                                                                               |
| C157  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/46 THEN R ELSE N/A                                                                                                                                   |
| C158  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/46 THEN R ELSE N/A                                                                                                                                                             |
| C159  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/46 THEN R ELSE N/A                                                                                                                                               |
| C159a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/46 AND A.4.3.7-1/65 THEN R ELSE N/A                                                                                                                              |
| C160  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/46 THEN R ELSE N/A                                                                                                                                                              |
| C161  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/41a THEN R ELSE N/A                                                                                                                                                            |
| C162  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/41a AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                            |
| C162a | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/41a AND A.4.3.5-1/1 AND A.4.3.2-1/139 THEN R ELSE N/A                                                                                                                          |
| C163  | IF A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/41a AND A.4.3.2-1/34 THEN R ELSE N/A                                                                                                                                            |
| C164  | IF (A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/41a THEN R ELSE N/A                                                                                                                                                            |
| C165  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/41a AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                             |
| C166  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/41a AND A.4.3.2-1/34 THEN R ELSE N/A                                                                                                                                            |
| C167  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/41a AND A.4.3.6-1/41a AND A.4.3.2-1/34 THEN R ELSE N/A                                                                                                                          |
| C168  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/42 THEN R ELSE N/A                                                                                                                                               |
| C169  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/62 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                                                                            |
| C170  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/62 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) THEN R ELSE N/A                                                                                            |
| C171  | IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/12 AND A.4.3.2-1/39 THEN R ELSE N/A                                                                                                    |
| C172  | IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/6 THEN R ELSE N/A                                                                                                                      |
| C173  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.2-1/77 THEN R ELSE N/A                                                                                                             |

|       |                                                                                                                                                                                                                          |
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| C174  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.2-1/77 THEN R ELSE N/A                                                                               |
| C175  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.2-1/77 THEN R ELSE N/A                                                                                   |
| C175a | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.2-1/77 AND A.4.3.2-1/139 THEN R ELSE N/A                                                                 |
| C176  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.2-1/77 THEN R ELSE N/A                                                                   |
| C177  | IF (A.4.1-1/1 OR A.4.1-1/2 OR A.4.3.12-1/5) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.12-1/2 THEN R ELSE N/A                                                                                                                 |
| C177a | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                                                               |
| C177b | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                                                               |
| C177c | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                                                               |
| C177d | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                                                               |
| C178  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND A.4.3.2-1/37 THEN R ELSE N/A                                                                                                    |
| C178a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND A.4.3.2-1/127 THEN R ELSE N/A                                                                                                   |
| C178b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND A.4.1-4A/1 AND A.4.3.2-1/37 THEN R ELSE N/A                                                                                     |
| C178c | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND A.4.1-4A/1 AND A.4.3.2-1/127 THEN R ELSE N/A                                                                                    |
| C179  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND (A.4.3.2-1/14B) THEN R ELSE N/A                                                                                                 |
| C179a | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND A.4.3.2-1/14B THEN R ELSE N/A                                                                                                                  |
| C179b | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND (A.4.3.2-1/58 OR A.4.3.2-1/59 OR (A.4.3.2-1/232 AND A.4.3.2-1/233)) THEN R ELSE N/A                                             |
| C180  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND (A.4.1-4A/3 OR A.4.1-4A/4 OR A.4.1-4A/6) AND A.4.1-3/2 THEN R ELSE N/A                                                                                         |
| C181  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A |
| C182  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A |
| C183  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                             |
| C183a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.3.6-1/114 THEN R ELSE N/A                                                                           |
| C184  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                             |
| C184a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.3.6-1/114 THEN R ELSE N/A                                                                           |
| C185  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/1 AND A.4.3.2-1/9 AND A.4.3.12-1/2 AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                                              |
| C186  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/1 AND A.4.3.2-1/9 AND A.4.3.12-1/2 AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                                              |
| C187  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/46 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                            |
| C188  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/46 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                            |
| C189  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                             |
| C190  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                             |
| C191  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                                           |
| C192  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                                           |
| C193  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                             |
| C194  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                             |
| C195  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                            |

[illegible]

|       |                                                                                                                                                                                                                                                                                                                      |
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| C207f | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.3.2-2/2 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2-2/20 THEN R ELSE N/A                                                                                                                               |
| C207g | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.3.2-2/2 AND A.4.3.2-2/6 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) AND A.4.3.5-1/17 THEN R ELSE N/A |
| C207h | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.3.2-2/2 AND A.4.3.2-2/6 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                         |
| C207i | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.3.2-2/2 AND A.4.3.2-2/6 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                            |
| C207j | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.3.2-2/2 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2-2/20 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                                            |
| C207k | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.3.2-2/2 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2-2/19 THEN R ELSE N/A                                                                                                                               |
| C207l | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.3.2-2/2 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2-2/19 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                                            |
| C208  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.3.12-1/8 THEN R ELSE N/A                                                                                                                                                                        |
| C209  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.3.12-1/8 THEN R ELSE N/A                                                                                                                                                                        |
| C210  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.3.12-1/8 THEN R ELSE N/A                                                                            |
| C211  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.3.12-1/8 THEN R ELSE N/A                                                                            |
| C212  | IF A.4.3.2-1/109 OR A.4.3.7-1/49 THEN R ELSE N/A                                                                                                                                                                                                                                                                     |
| C213  | IF A.4.3.2-1/108 OR A.4.3.7-1/49 THEN R ELSE N/A                                                                                                                                                                                                                                                                     |
| C214  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/41 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                                                                                          |
| C215  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/41 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                                                                                          |
| C216  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/41 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                                                                          |
| C217  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/41 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                                                                          |
| C218  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.2-1/65 AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                                                        |
| C219  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.2-1/65 AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                                                        |
| C220  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.2-1/65 AND A.4.3.5-1/1 AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                                        |
| C221  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.2-1/65 AND A.4.3.5-1/1 AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                                        |
| C222  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                                                                         |
| C223  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                                                                         |
| C224  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.2-1/9 THEN R ELSE N/A                                                                                                                                                                                                                            |
| C225  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.2-1/46 THEN R ELSE N/A                                                                                                                                                                                                                           |
| C226  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.2-1/63 AND A.4.3.2-1/65 THEN R ELSE N/A                                                                                                                                                                                                          |
| C226a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                                                                          |
| C227  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.6-1/41a THEN R ELSE N/A                                                                                                                                                                                        |
| C228  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.6-1/41a AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                                                        |
| C229  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.6-1/41a AND A.4.3.5-1/1 AND A.4.3.2-1/34 THEN R ELSE N/A                                                                                                                                                                                         |
| C230  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND (A.4.1-1/1 OR A.4.1-1/2 OR A.4.3.12-1/5) AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND (NOT A.4.3.6-1/2) THEN R ELSE N/A                                                                                                                            |

|       |                                                                                                                                                                                                                                  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C231  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND (A.4.1-1/1 OR A.4.1-1/2 OR A.4.3.12-1/5) AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.1-7a/1 AND A.4.3.6-1/2 AND A.4.3.6-1/11 THEN R ELSE N/A                                                |
| C232  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND (A.4.1-1/1 OR A.4.1-1/2 OR A.4.3.12-1/5) AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND (NOT A.4.3.6-1/2) AND A.4.3.5-1/1 THEN R ELSE N/A                        |
| C233  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND (A.4.1-1/1 OR A.4.1-1/2 OR A.4.3.12-1/5) AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.1-7a/1 AND A.4.3.6-1/2 AND A.4.3.6-1/11 AND A.4.3.5-1/1 THEN R ELSE N/A                                |
| C234  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND (NOT A.4.3.6-1/2) THEN R ELSE N/A                                                                                             |
| C235  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.6-1/2 THEN R ELSE N/A                                                                                                   |
| C236  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND (NOT A.4.3.6-1/2) AND A.4.3.5-1/1 THEN R ELSE N/A                                                                             |
| C237  | IF ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.6-1/2 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                   |
| C238  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.6-1/41a AND A.4.3.2-1/34 THEN R ELSE N/A                                                                                                                     |
| C239  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.12-1/8 THEN R ELSE N/A                                                                                                                                       |
| C240  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.11-1/10 THEN R ELSE N/A                                                                                                                                                       |
| C240a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.11-1/10 AND A.4.3.11-1/9 THEN R ELSE N/A                                                                                                                                      |
| C241  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2A.1-1/1 AND A.4.3.5-1/13 THEN R ELSE N/A                                                                                                                                     |
| C242  | IF A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND (A.4.1-4A/3 OR A.4.1-4A/4 OR A.4.1-4A/6) AND A.4.1-3/2 AND A.4.3.2B.2.0-1A/2 AND A.4.3.5-1/12 THEN R ELSE N/A                                                           |
| C243  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.1-3/2 AND A.4.3.2B.2.0-1A/2 AND A.4.3.5-1/12 THEN R ELSE N/A                                                          |
| C244  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.5-1/13 THEN R ELSE N/A                                                                         |
| C244a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.5-1/13 AND A.4.3.2-1/231 THEN R ELSE N/A                                                       |
| C245  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/119 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                                      |
| C246  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/120 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                                      |
| C247  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/119 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                      |
| C248  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/120 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                      |
| C249  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/119 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                                                                     |
| C250  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/120 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                                                                     |
| C251  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/119 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) THEN R ELSE N/A                                                                                     |
| C252  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/120 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) THEN R ELSE N/A                                                                                     |
| C253  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.6-1/68 AND A.4.3.6-1/72 THEN R ELSE N/A                                                                        |
| C254  | Void                                                                                                                                                                                                                             |
| C255  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.6-1/68 AND A.4.3.6-1/72 AND THEN R ELSE N/A                                                                                                      |
| C256  | Void                                                                                                                                                                                                                             |
| C257  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-5/1 AND A.4.3.6-1/66 AND A.4.3.6-1/69 THEN R ELSE N/A                            |
| C258  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.6-1/68 AND A.4.3.6-1/72 THEN R ELSE N/A                                          |
| C259  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND A.4.3.6-1/73 THEN R ELSE N/A |
| C260  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND A.4.3.6-1/74 THEN R ELSE N/A |
| C261  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 AND NOT A.4.3.1-7a/3 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                   |
| C262  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 AND NOT A.4.3.1-7a/3 AND A.4.3.2A.1-1/2 THEN R ELSE N/A                                   |
| C263  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 AND NOT A.4.3.1-7a/3 AND A.4.3.2A.1-1/3 THEN R ELSE N/A                                   |

|       |                                                                                                                                                                                                                                                                          |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C264  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/63 THEN R ELSE N/A                                                                                                                                                                                 |
| C265  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND A.4.3.6-1/63 AND A.4.3.6-1/65 THEN R ELSE N/A                                                                    |
| C266  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/63 AND A.4.3.6-1/67 THEN R ELSE N/A                                                                                                                                                                |
| C267  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.1-3/2 AND A.4.3.2B.2.0-1A/2 AND A.4.3.2-1/128 THEN R ELSE N/A                                                                                                 |
| C267a | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.1-3/2 AND A.4.3.2B.2.0-1A/2 AND A.4.3.2-1/128 AND A.4.3.2-1/231 THEN R ELSE N/A                                                                               |
| C268  | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3) AND A.4.1-3/2 AND A.4.3.2-1/129 THEN R ELSE N/A                                                                                                                                                    |
| C268a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/2 AND A.4.1-4A/4 AND A.4.3.2-1/129 THEN R ELSE N/A                                                                                                                                                                                |
| C268b | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.1-4/6 AND A.4.3.2-1/130 THEN R ELSE N/A                                                                                                                                                                                 |
| C269  | IF A.4.1-1/2 AND A.4.1-4/5 AND A.4.1-3/2 AND A.4.3.2B.2.0-1A/2 AND A.4.3.2-1/128 THEN R ELSE N/A                                                                                                                                                                         |
| C270  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.2-1/128 THEN R ELSE N/A                                                                                                                |
| C270a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND (A.4.1-3/1 OR A.4.1-3/2) AND A.4.1-4A/5 AND A.4.3.2A.1-1/1 AND A.4.3.2-1/128 AND A.4.3.2-1/231 THEN R ELSE N/A                                                                                                             |
| C271  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.1-4A/3 AND A.4.3.2A.1-1/1 AND A.4.3.2-1/128 THEN R ELSE N/A                                                                                                                                                             |
| C271a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.1-4A/6 AND A.4.3.2A.1-1/1 AND A.4.3.2-1/128 THEN R ELSE N/A                                                                                                                                                             |
| C272  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                                                                           |
| C273  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                                                                           |
| C274  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.12-1/24 OR A.4.3.12-1/24A) AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A |
| C275  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.12-1/24 OR A.4.3.12-1/24A) AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A |
| C276  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 THEN R ELSE N/A                                       |
| C277  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 THEN R ELSE N/A                                       |
| C278  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/123 AND A.4.3.2-1/22 THEN R ELSE N/A                                                                                                                                                                             |
| C279  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/124 AND A.4.3.2-1/22 THEN R ELSE N/A                                                                                                                                                                             |
| C280  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/124 AND A.4.3.2-1/125 A.4.3.2-1/126 THEN R ELSE N/A                                                                                                                                                              |
| C281  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/123 AND A.4.3.2-1/22 THEN R ELSE N/A                                                                                                                                                                              |
| C282  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/124 AND A.4.3.2-1/22 THEN R ELSE N/A                                                                                                                                                                              |
| C283  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/124 AND A.4.3.2-1/125 AND A.4.3.2-1/126 THEN R ELSE N/A                                                                                                                                                           |
| C284  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.1-4/6 AND A.4.3.2-1/132 THEN R ELSE N/A                                                                                                                                                                                 |
| C285  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/1 AND A.4.3.2-1/14B AND A.4.3.2A.1-2/1 THEN R ELSE N/A                                                                                                                                              |
| C286  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/81 THEN R ELSE N/A                                                                                                                                                                                 |
| C287  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.6-1/81 THEN R ELSE N/A                                                                                                                                                                 |
| C288  | IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2B.2.0-1A/1 AND A.4.3.2-1/132 THEN R ELSE N/A                                                                                                                 |
| C289  | IF A.4.1-1/2 AND A.4.1-4/4 AND A.4.1-3/2 AND A.4.3.2B.2.0-1A/1 AND A.4.3.2-1/132 THEN R ELSE N/A                                                                                                                                                                         |
| C290  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41a AND (A.4.3.2-1/42b OR A.4.3.2-1/43b OR A.4.3.2-1/44b) AND A.4.3.6-1/73 THEN R ELSE N/A                                                                                                       |
| C291  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41a AND (A.4.3.2-1/42b OR A.4.3.2-1/43b OR A.4.3.2-1/44b) AND A.4.3.6-1/74 THEN R ELSE N/A                                                                                                       |
| C292  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/63 THEN R ELSE N/A                                                                                                                                                                                                |
| C293  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/63 AND A.4.3.6-1/67 THEN R ELSE N/A                                                                                                                                                                               |
| C294  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41a AND A.4.3.6-1/68 AND A.4.3.6-1/70 AND A.4.3.6-1/72 THEN R ELSE N/A                                                                                                                           |
| C295  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/68 AND NOT A.4.3.6-1/70 AND A.4.3.6-1/72 THEN R ELSE N/A                                                                                                                                                          |
| C296  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/68 AND A.4.3.6-1/70 AND A.4.3.6-1/72 THEN R ELSE N/A                                                                                                                                                              |

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| C297  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.1-4A/3 OR A.4.1-4A/4 OR A.4.1-4A/6) AND A.4.3.2A.1-1/1 AND A.4.3.6-1/68 AND A.4.3.6-1/72 THEN R ELSE N/A                                                                               |
| C298  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.3.6-1/81 THEN R ELSE N/A                                                                            |
| C299  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.3.6-1/81 THEN R ELSE N/A                                                                            |
| C300  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.4-1/16 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                              |
| C301  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.4-1/16 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                              |
| C302  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.3.6-1/8a THEN R ELSE N/A                                                                                            |
| C302a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.7-1/65 AND A.4.3.6-1/8a THEN R ELSE N/A                                                                                                                                |
| C303  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.3.6-1/8a THEN R ELSE N/A                                                                                            |
| C304  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.3.6-1/7a THEN R ELSE N/A                                                                                            |
| C305  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.3.6-1/7a THEN R ELSE N/A                                                                                            |
| C306  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.3.6-1/6 THEN R ELSE N/A                                                                                             |
| C307  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.3.6-1/6 THEN R ELSE N/A                                                                                             |
| C308  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.4-1/16 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                 |
| C309  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.6-1/41a THEN R ELSE N/A                                                                                                                                              |
| C310  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.6-1/41a AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                              |
| C311  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.2-1/56 AND A.4.3.2-1/78 THEN R ELSE N/A                                                                                                                              |
| C312  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.6-1/8a THEN R ELSE N/A                                                                                                                                               |
| C313  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/4 THEN R ELSE N/A                                                                                                  |
| C314  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/147 AND A.4.3.2-1/148 OR A.4.3.2-1/149 OR A.4.3.2-1/150 THEN R ELSE N/A                                                                                                           |
| C315  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) AND A.4.3.12-1/2 THEN R ELSE N/A                      |
| C316  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND A.4.3.12-1/2 THEN R ELSE N/A                                                          |
| C317  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.12-1/2 AND A.4.3.6-1/6 THEN R ELSE N/A                                                                                                                                                |
| C318  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/4 AND A.4.3.5-1/1 THEN R ELSE N/A |
| C319  | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 AND (A.4.3.12-1/2 OR A.4.3.12A-1/1) AND A.4.3.1-7a/1 AND A.4.3.5-1/1 THEN R ELSE N/A |
| C320  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.6-1/78 THEN R ELSE N/A                                                                                                                                               |
| C321  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) THEN R ELSE N/A                                                          |
| C321a | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                       |
| C321b | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) THEN R ELSE N/A                     |
| C321c | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND A.4.3.2-1/46 THEN R ELSE N/A                                         |
| C321d | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/1 AND A.4.3.2-2/6 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                                               |
| C321e | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/1 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                            |
| C321f | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/1 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2A.1-1/1 AND A.4.3.5-1/1 THEN R ELSE N/A                                                            |
| C321g | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/1 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2-2/20 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                           |

|       |                                                                                                                                                                                                                                                                                              |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C321h | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/1 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2-2/19 AND A.4.3.2A.1-1/1 THEN R ELSE N/A                                                                                                               |
| C321i | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/1 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2A.1-1/1 AND (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) THEN R ELSE N/A                                                                          |
| C321j | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/1 AND A.4.3.2-2/6 AND (A.4.3.2-2/10 OR A.4.3.2-2/11) AND A.4.3.2A.1-1/1 AND (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND A.4.3.5-1/1 THEN R ELSE N/A                                                          |
| C322  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10 AND A.4.3.2-2/12) OR (A.4.3.2-2/9 AND A.4.3.2-2/11 AND A.4.3.2-2/13)) THEN R ELSE N/A                                                                            |
| C323  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10 AND A.4.3.2-2/12 AND A.4.3.2-2/14) OR (A.4.3.2-2/9 AND A.4.3.2-2/11 AND A.4.3.2-2/13 AND A.4.3.2-2/15)) THEN R ELSE N/A                                          |
| C324  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10 AND A.4.3.2-2/12 AND A.4.3.2-2/14) OR (A.4.3.2-2/9 AND A.4.3.2-2/11 AND A.4.3.2-2/13 AND A.4.3.2-2/15)) AND A.4.3.5-1/1 THEN R ELSE N/A                          |
| C325  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) AND A.4.3.5-1/17 THEN R ELSE N/A   |
| C326  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) THEN R ELSE N/A                    |
| C326a | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24A) AND A.4.3.2A.1-1/1 THEN R ELSE N/A |
| C327  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-2/3 AND A.4.3.2-2/6 AND A.4.3.2-2/7 AND ((A.4.3.2-2/8 AND A.4.3.2-2/10) OR (A.4.3.2-2/9 AND A.4.3.2-2/11)) AND (A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) THEN R ELSE N/A                                                        |
| C328  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2-1/14B AND A.4.3.2A.1-2/1 THEN R ELSE N/A                                                                                                                                                                  |
| C329  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2-1/84A AND A.4.3.2A.1-2/1 THEN R ELSE N/A                                                                                                                                                                  |
| C330  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/14B THEN R ELSE N/A                                                                                                                                                                               |
| C331  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/84A THEN R ELSE N/A                                                                                                                                                                               |
| C332  | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 THEN R ELSE N/A                                                                                                                                                                                   |
| C332a | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                                                   |
| C332b | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/41 THEN R ELSE N/A                                                                                                                                                                  |
| C332c | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.5-1/1 AND A.4.3.6-1/41 THEN R ELSE N/A                                                                                                                                                  |
| C332d | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.2-1/63 AND A.4.3.2-1/65 THEN R ELSE N/A                                                                                                                                                 |
| C332e | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.2-1/63 AND A.4.3.2-1/65 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                                 |
| C332f | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND A.4.3.2-1/65 THEN R ELSE N/A                                                                                                                                |
| C332g | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/41 AND A.4.3.2-1/64 AND A.4.3.2-1/65 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                                                |
| C332h | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.8-1/11 AND A.4.3.8-1/27 THEN R ELSE N/A                                                                                                                                                 |
| C332i | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.8-1/11 AND A.4.3.8-1/26 AND A.4.3.6-1/76 AND A.4.3.6-1/91 THEN R ELSE N/A                                                                                                               |
| C332j | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/83 THEN R ELSE N/A                                                                                                                                                                  |
| C332k | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/84 THEN R ELSE N/A                                                                                                                                                                  |
| C332l | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/85 THEN R ELSE N/A                                                                                                                                                                  |
| C332m | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/45 THEN R ELSE N/A                                                                                                                                                                  |
| C332n | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND (A.4.3.7-1/73 OR A.4.3.7-1/74) THEN R ELSE N/A                                                                                                                                                |

|       |                                                                                                                                                                                                                                                      |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C332o | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.7-1/74 THEN R ELSE N/A                                                                                                                          |
| C332x | IF A.4.1-1/1 AND ([10]A.4.1-1/1 OR [10]A.4.1-1/2) AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 THEN R ELSE N/A                                                                                                      |
| C332y | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 THEN R ELSE N/A                                                                                                                             |
| C332p | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/6 THEN R ELSE N/A                                                                                                                           |
| C332q | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND (A.4.3.8-1/54 OR A.4.3.8-1/55) THEN R ELSE N/A                                                                                                        |
| C332r | FFS                                                                                                                                                                                                                                                  |
| C332s | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/41 AND A.4.3.6-1/82 THEN R ELSE N/A                                                                                                         |
| C332t | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/41 AND A.4.3.6-1/82 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                         |
| C332u | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND A.4.3.6-1/82 THEN R ELSE N/A                                                                                                                          |
| C332v | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) AND (A.4.3.2-1/24 OR A.4.3.2-1/24a) THEN R ELSE N/A |
| C332w | IF A.4.1-1/1 AND A.4.1-2/9 AND A.4.1-3/1 AND (A.4.3.2-1/91 OR A.4.3.2-1/92) AND A.4.4-1/17 AND (A.4.3.2-1/42 OR A.4.3.2-1/43 OR A.4.3.2-1/44 OR A.4.3.2-1/42a OR A.4.3.2-1/43a OR A.4.3.2-1/44a) THEN R ELSE N/A                                     |
| C333  | IF A.4.1-1/2 AND A.4.1.2/8 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.11-1/78 THEN R ELSE N/A                                                                                                                                  |
| C334  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/81 THEN R ELSE N/A                                                                                                                                                             |
| C335  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.6-1/81 THEN R ELSE N/A                                                                                                                                             |
| C336  | IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/4 THEN R ELSE N/A                                                                                                                                                  |
| C337  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/147 AND (A.4.3.2-1/148 OR A.4.3.2-1/149 OR A.4.3.2-1/150) THEN R ELSE N/A                                                                                                      |
| C338  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2A.1-2/2 AND A.4.3.2A.4.2-2/1 AND A.4.3.2-1/127a AND A.4.3.6-1/80 THEN R ELSE N/A                                                                                                  |
| C339  | IF A.4.1-1/1 AND A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2A.1-2/3 AND A.4.3.2A.4.3-2/1 AND A.4.3.2-1/127a AND A.4.3.6-1/80 THEN R ELSE N/A                                                                                    |
| C340  | IF A.4.1-1/1 AND A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2A.1-2/2 AND A.4.3.2A.4.2-2/1 AND A.4.3.2-1/127a AND A.4.3.6-1/80 AND A.4.3.2-1/142 THEN R ELSE N/A                                                                  |
| C341  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 AND A.4.3.2-1/172 THEN R ELSE N/A                                                                                                          |
| C342  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/152 THEN R ELSE N/A                                                                                                                                                                           |
| C343  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/151 THEN R ELSE N/A                                                                                                                                                                           |
| C343a | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND A.4.3.2-1/151 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                                                          |
| C343b | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/151 AND A.4.3.1-7a/2 THEN R ELSE N/A                                                                                                                               |
| C344  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.5-1/1 AND A.4.3.2-1/152 THEN R ELSE N/A                                                                                                                                                           |
| C345  | IF A.4.1-1/2 AND A.4.1-1/8 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.1-7/6 AND A.4.3.11-1/10 THEN R ELSE N/A                                                                                                                                             |
| C345a | IF A.4.1-1/2 AND A.4.1-1/8 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.1-7/6 AND A.4.3.11-1/9 AND A.4.3.11-1/10 AND A.4.3.11-1/11 THEN R ELSE N/A                                                                                                          |
| C346  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND A.4.1-4B/3 AND A.4.3.2C.1-1/2 AND A.4.3.2-1/127a THEN R ELSE N/A                                                                                            |
| C347  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) AND A.4.1-4B/3 AND A.4.3.2C.1-1/3 AND A.4.3.2-1/127a THEN R ELSE N/A                                                                                            |
| C348  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/124 AND A.4.3.2-1/22 AND A.4.3.2-1/221 THEN R ELSE N/A                                                                                                                                        |
| C349  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/174 THEN R ELSE N/A                                                                                                                                                                           |
| C350  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/4 THEN R ELSE N/A                                                                                                                                                                            |
| C351  | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.5-1/1 AND A.4.3.6-1/4 THEN R ELSE N/A                                                                                                                                                            |
| C351a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.12-1/2 AND (A.4.3.1-7a/1 OR A.4.3.1-7a/4) THEN R ELSE N/A                                                                                                                          |
| C351b | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.13-1/6 THEN R ELSE N/A                                                                                                                                                                            |
| C352  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/3 AND A.4.1-4/7 THEN R ELSE N/A                                                                                                                                                                |
| C353  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/33 AND A.4.3.2-1/212 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2 THEN R ELSE N/A                                                                                         |
| C354  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/33 AND A.4.3.2-1/212 AND A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3 THEN R ELSE N/A                                                                                         |

|       |                                                                                                                                                                                                       |
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| C355  | IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/33 AND A.4.3.2-1/212 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                         |
| C356  | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.2-1/33 AND A.4.3.2-1/212 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) THEN R ELSE N/A                                         |
| C357  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/191 AND A.4.3.2-1/181 AND A.4.3.6-1/102 AND A.4.3.2-1/196 THEN R ELSE N/A                                                       |
| C358  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/191 AND A.4.3.2-1/181 AND A.4.3.6-1/102 THEN R ELSE N/A                                                                         |
| C359  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/196 THEN R ELSE N/A                                                                                                             |
| C360  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/97 THEN R ELSE N/A                                                                                                              |
| C361  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/195 THEN R ELSE N/A                                                                                                             |
| C361a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/195 THEN R ELSE N/A                                                                                                             |
| C362  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/191 AND A.4.3.2-1/196 THEN R ELSE N/A                                                                                           |
| C362a | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/192 AND A.4.3.2-1/196 THEN R ELSE N/A                                                                                           |
| C363  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/100 AND A.4.3.6-1/97 THEN R ELSE N/A                                                                                            |
| C364  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/191 AND A.4.3.2-1/178 AND A.4.3.2-1/183 AND A.4.3.2-1/186 AND A.4.3.6-1/102 AND A.4.3.2-1/196 THEN R ELSE N/A                   |
| C364a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/191 AND A.4.3.2-1/175 AND A.4.3.2-1/183 AND A.4.3.2-1/186 AND A.4.3.6-1/102 AND A.4.3.2-1/196 THEN R ELSE N/A                                  |
| C365  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/183 AND A.4.3.2-1/186 AND A.4.3.2-1/191 AND A.4.3.2-1/178 AND A.4.3.6-1/102 THEN R ELSE N/A                                     |
| C366  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/178 AND A.4.3.2-1/183 AND A.4.3.2-1/184 AND A.4.3.2-1/185 AND A.4.3.2-1/186 AND A.4.3.6-1/102 AND A.4.3.2-1/194 THEN R ELSE N/A |
| C366a | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/183 AND A.4.3.2-1/184 AND A.4.3.2-1/185 AND A.4.3.6-1/102 AND A.4.3.2-1/194 THEN R ELSE N/A                                                    |
| C367  | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.13-1/6 THEN R ELSE N/A                                                                                                              |
| C368  | IF A.4.1-1/1 AND A.4.1-2/7 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND (NOT A.4.3.1-7a/2) AND A.4.3.2-1/208 THEN R ELSE N/A                                           |
| C369  | IF A.4.1-1/1 AND A.4.1-2/7 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/2 AND A.4.3.2-1/208 THEN R ELSE N/A                                                                  |
| C370  | IF A.4.1-1/2 AND A.4.1-2/7 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/1 AND (NOT A.4.3.1-7a/2) AND A.4.3.2-1/172 THEN R ELSE N/A                                           |
| C371  | IF A.4.1-1/1 AND A.4.1-2/7 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND A.4.3.1-7a/2 AND A.4.3.2-1/172 THEN R ELSE N/A                                                                  |
| C372  | IF (A.4.1-1/1 OR A.4.1-1/2 OR A.4.3.12-1/5) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.12A-1/1 THEN R ELSE N/A                                                                                             |
| C372a | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7a/4 AND A.4.3.12A-1/1 THEN R ELSE N/A                                                                                                           |
| C372b | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7a/4 AND A.4.3.12A-1/1 AND A.4.3.12A-1/2 THEN R ELSE N/A                                                                                         |
| C372c | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7a/1 AND A.4.3.12A-1/1 THEN R ELSE N/A                                                                                                           |
| C372d | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7a/1 AND A.4.3.12A-1/1 AND A.4.3.12A-1/2 THEN R ELSE N/A                                                                                         |
| C372e | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7a/4 AND A.4.3.12A-1/1 THEN R ELSE N/A                                                                                                           |
| C372f | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7a/4 AND A.4.3.12A-1/1 AND A.4.3.12A-1/2 THEN R ELSE N/A                                                                                         |
| C372g | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7a/1 AND A.4.3.12A-1/1 THEN R ELSE N/A                                                                                                           |
| C372h | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7a/1 AND A.4.3.12A-1/1 AND A.4.3.12A-1/2 THEN R ELSE N/A                                                                                         |
| C373  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.9-1/6 AND (A.4.3.1-7a/1 AND NOT A.4.3.1-7a/2) THEN R ELSE N/A                                                                                      |
| C374  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.9-1/6 AND (A.4.3.1-7a/1 AND NOT A.4.3.1-7a/3) THEN R ELSE N/A                                                                                      |
| C375  | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.9-1/6 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/2) THEN R ELSE N/A                                                                                       |
| C376  | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.9-1/6 AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) THEN R ELSE N/A                                                                                       |
| C377  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.9-1/6 THEN R ELSE N/A                                                                                                                              |
| C378  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/227 THEN R ELSE N/A                                                                                                                            |
| C379  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/53 AND A.4.3.2-1/56 AND A.4.3.2-1/78 AND A.4.3.2-1/226 AND A.4.3.2-1/227 THEN R ELSE N/A                                                       |
| C380  | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/56 AND A.4.3.2-1/78 AND A.4.3.2-1/226 AND A.4.3.2-1/227 AND A.4.3.2-1/41 THEN R ELSE N/A                                                       |

|                                                                                                                                             |                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C381                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/191 AND A.4.3.2-1/196 THEN R ELSE N/A                                                                            |
| C382                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/191 AND A.4.3.2-1/181 AND A.4.3.6-1/102 AND A.4.3.2-1/196 THEN R ELSE N/A                                        |
| C383                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/100 AND A.4.3.6-1/97 THEN R ELSE N/A                                                                             |
| C384                                                                                                                                        | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/196 THEN R ELSE N/A                                                                                                             |
| C385                                                                                                                                        | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.6-1/97 THEN R ELSE N/A                                                                                                              |
| C386                                                                                                                                        | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/151 AND A.4.3.5-1/1 THEN R ELSE N/A                                                                                             |
| C387                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-1A/2 AND A.4.3.2B.2.3.1-1/1 AND A.4.3.2-1/231 THEN R ELSE N/A                                                 |
| C388                                                                                                                                        | IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.2-1/174 THEN R ELSE N/A                                                                                                            |
| C389                                                                                                                                        | IF A.4.1-1/2 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.3.2A.1-2/3 AND A.4.3.2A.4.3-2/1 AND A.4.3.2-1/127a AND A.4.3.6-1/80 AND A.4.3.2-1/142 THEN R ELSE N/A                  |
| C390                                                                                                                                        | IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.1-7a/3) AND A.4.3.2-1/172 THEN R ELSE N/A                                           |
| C391                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 AND A.4.3.6-1/105 AND A.4.3.6-1/106 THEN R ELSE N/A                            |
| C392                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/105 AND A.4.3.6-1/106 THEN R ELSE N/A                                                                            |
| C393                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.7-1/65 AND A.4.3.6-1/4 THEN R ELSE N/A                                                                               |
| C394                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.7-1/65 AND A.4.3.6-1/6a THEN R ELSE N/A                                                                              |
| C395                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND 4.3.8-1/11 AND 4.3.8-1/52 THEN R ELSE N/A                                                                                  |
| C396                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND 4.3.8-1/11 AND 4.3.8-1/19 AND 4.3.8-1/52 THEN R ELSE N/A                                                                   |
| C397                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/240 AND A.4.3.2-1/174 and A.4.3.2-1/YP1 THEN R ELSE N/A                                                          |
| C398                                                                                                                                        | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/241 AND (NOT A.4.3.2-1/221) THEN R ELSE N/A                                                                                     |
| C399                                                                                                                                        | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.1-3/1 AND A.4.3.2-1/221 THEN R ELSE N/A                                                                                                             |
| C400                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7/5 AND A.4.3.2-1/14A THEN R ELSE N/A                                                                              |
| C401                                                                                                                                        | IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7/5 AND A.4.3.2-1/14A THEN R ELSE N/A                                                                                             |
| C402                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7/5 AND (A.4.3.2-1/14A OR (A.4.3.2-1/59 OR (A.4.3.2-1/232 AND A.4.3.2-1/233))) THEN R ELSE N/A                     |
| C403                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7/5 AND A.4.3.2-1/84B THEN R ELSE N/A                                                                              |
| C404                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/109 THEN R ELSE N/A                                                                                              |
| C405                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/108 THEN R ELSE N/A                                                                                              |
| C406                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 AND A.4.3.6-1/108 THEN R ELSE N/A                              |
| C407                                                                                                                                        | IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-2/7 AND A.4.3.6-1/105A THEN R ELSE N/A |
| C408                                                                                                                                        | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.3.2-1/226 AND A.4.3.2-1/32 AND THEN R ELSE N/A                                                                                                      |
| C409                                                                                                                                        | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.3.2-1/226 AND A.4.3.2-1/32 AND A.4.3.2-1/228 THEN R ELSE N/A                                                                                        |
| C410                                                                                                                                        | IF A.4.1-1/2 AND A.4.1-2/8 AND A.4.3.2-1/226 AND A.4.3.2-1/41 THEN R ELSE N/A                                                                                                          |
| C411                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND (A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (A.4.3.2-1/104 OR A.4.3.2-1/105 OR A.4.3.2-1/106 OR A.4.3.2-1/107) THEN R ELSE N/A             |
| C412                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 and A.4.3.2A.1-2/2 and A.4.3.2-1/127a THEN R ELSE N/A                                                           |
| C413                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND ((A.4.1-4A/1 or A.4.1-4A/2) AND A.4.1-4A/5) and A.4.3.2A.1-2/3 and A.4.3.2-1/127a THEN R ELSE N/A                          |
| C414                                                                                                                                        | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 and A.4.3.2A.1-2/3 and A.4.3.2-1/127a THEN R ELSE N/A                                                           |
| C415                                                                                                                                        | IF A.4.1-1/2 AND A.4.3.2-1/226 AND A.4.3.2-1/41 OR A.4.3.2-1/32 AND A.4.3.2-1/228 OR A.4.3.2-1/229 THEN R ELSE N/A                                                                     |
| C416                                                                                                                                        | IF A.4.1-1/1 AND A.4.3.1-7a/2 OR A.4.3.1-7a/1 AND A.4.3.2-1/161 THEN R ELSE N/A                                                                                                        |
| NOTE 1: Cxxxx applicability is defined for enhanced type 1 receiver for NR related tests (A.4.3.9-1/1).                                     |                                                                                                                                                                                        |
| NOTE 2: Cxxxy applicability is defined for alternative additional DMRS position for co-existence with LTE CRS related tests (A.4.3.2-1/20). |                                                                                                                                                                                        |
| NOTE 3: Cxxxz applicability is defined for modified MPR behaviour related test (A.4.3.2-1/25).                                              |                                                                                                                                                                                        |
| NOTE 4: Cxxxw applicability is defined for mpr Power Boost related test (A.4.3.2-1/38).                                                     |                                                                                                                                                                                        |

Table 4.0-2: Tested Bands Selection Criteria

| Code      | Tested Bands Selection Criteria                                                                                              | Comment                                                                                                                                              |
|-----------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| D001      | A.4.3.1-1 OR A.4.3.1-2                                                                                                       | All supported FDD or TDD FR1 bands                                                                                                                   |
| D001<br>a | (A.4.3.1-1 OR A.4.3.1-2) AND NOT A.4.3.9-14                                                                                  | All supported FDD or TDD FR1 bands without Tx Diversity capability                                                                                   |
| D001<br>b | A.4.3.1-1 OR A.4.3.1-2 OR A.4.3.1-12                                                                                         | All supported FDD or TDD or HD-FDD FR1 bands                                                                                                         |
| D002      | Void                                                                                                                         |                                                                                                                                                      |
| D003      | A.4.3.1-5                                                                                                                    | All supported FR1 SUL Bands                                                                                                                          |
| D004      | {n1, n2, n3, n5, n7, n8, n12, n14, n20, n25, n28, n30, n34, n38, n39, n40, n41, n50, n51, n65, n66, n70, n71, n74, n75, n76} | All supported bands among n1, n2, n3, n5, n7, n8, n12, n14, n20, n25, n28, n30, n34, n38, n39, n40, n41, n50, n51, n65, n66, n70, n71, n74, n75, n76 |
| D005      | A.4.3.1-3                                                                                                                    | All supported FR2 Bands                                                                                                                              |
| D006      | Void                                                                                                                         |                                                                                                                                                      |
| D007      | Void                                                                                                                         |                                                                                                                                                      |
| D008      | ANY((A.4.3.1-1) AND 10MHz)                                                                                                   | Any FDD FR1 band within the set supporting 10 MHz UE Channel BW                                                                                      |
| D008<br>a | ANY((A.4.3.1-1) AND 3MHz)                                                                                                    | Any FDD FR1 band within the set supporting 3 MHz UE Channel BW                                                                                       |
| D009      | ANY((A.4.3.1-2) AND 20MHz)                                                                                                   | Any TDD FR1 band within the set supporting 20 MHz UE Channel BW                                                                                      |
| D010      | ANY((A.4.3.1-2) AND 40MHz)                                                                                                   | Any TDD FR1 band within the set supporting 40 MHz UE Channel BW                                                                                      |
| D011      | A.4.3.9-4a OR A.4.3.9-4b                                                                                                     | All supported 4 Rx antenna ports Bands                                                                                                               |
| D012      | 2Tx(A.4.3.9-12) AND FDD                                                                                                      | All supported FDD FR1 band with 2Tx UL MIMO capabilities                                                                                             |
| D012<br>a | 4Tx(A.4.3.9-12) AND FDD                                                                                                      | All supported FDD FR1 band with 4Tx UL MIMO capabilities                                                                                             |
| D013      | ANY((A.4.3.1-3) AND 50MHz)                                                                                                   | Any TDD FR2 band within the set supporting 50 MHz UE Channel BW                                                                                      |
| D014      | ANY((A.4.3.1-3) AND 100MHz)                                                                                                  | Any TDD FR2 band within the set supporting 100 MHz UE Channel BW                                                                                     |
| D015      | ANY((A.4.3.1-3) AND 200MHz)                                                                                                  | Any TDD FR2 band within the set supporting 200 MHz UE Channel BW                                                                                     |
| D016      | A.4.3.1-9                                                                                                                    | All supported FR1 sidelink bands                                                                                                                     |
| D017      | {n40, n41, n77, n78, n79}                                                                                                    | All supported TDD bands among n40, n41, n77, n78, n79                                                                                                |
| D017<br>a | {n40, n41, n77, n78, n79} AND NOT A.4.3.9-14                                                                                 | All supported TDD bands among n40, n41, n77, n78, n79 and without Tx Diversity capability                                                            |
| D018      | A.4.3.1-2/2e OR A.4.3.1-2/12                                                                                                 | All supported FR1 Bands for operation with shared spectrum channel access                                                                            |
| D019      | {n34, n38, n39, n48, n90} AND 10MHz                                                                                          | All supported TDD FR1 bands among n34, n38, n39, n48, n90 supporting 10MHz UE Channel BW                                                             |
| D020      | Void                                                                                                                         |                                                                                                                                                      |
| D021      | Void                                                                                                                         |                                                                                                                                                      |
| D022      | 2Tx(A.4.3.9-12) AND NOT A.4.3.1-5                                                                                            | All supported FDD or TDD FR1 Bands with 2Tx UL MIMO capabilities                                                                                     |
| D022<br>a | 4Tx(A.4.3.9-12) AND NOT A.4.3.1-5                                                                                            | All supported FDD or TDD FR1 Bands with 4Tx UL MIMO capabilities                                                                                     |
| D023      | A.4.3.9-13                                                                                                                   | All supported FR2 Bands with UL MIMO capabilities                                                                                                    |
| D024      | A.4.3.9-12 AND A.4.3.1-5                                                                                                     | All supported FR1 Bands with UL MIMO capabilities and SUL bands                                                                                      |
| D025      | {n46, n96, n102} AND CCA                                                                                                     | All supported TDD FR1 bands with CCA                                                                                                                 |
| D026      | Void                                                                                                                         |                                                                                                                                                      |
| D027      | A.4.3.1-11                                                                                                                   | All supported NR NTN satellite bands in FR1-NTN                                                                                                      |
| D028      | {n1, n3, n34, n39, n41, n78, n79}                                                                                            | All supported ATG bands among n1, n3, n34, n39, n41, n78, n79                                                                                        |
| D029      | A.4.3.9-4c                                                                                                                   | All bands supporting 2Rx antenna ports capabilities                                                                                                  |
| D030      | 2Tx(A.4.3.9-14)                                                                                                              | All supported FDD or TDD FR1 bands with 2Tx Tx Diversity capability                                                                                  |
| D030<br>a | 4Tx(A.4.3.9-14)                                                                                                              | All supported FDD or TDD FR1 bands with 4Tx Tx Diversity capability                                                                                  |

NOTE 1: Band Selection is based on set theory. For each feature, item number shall correspond to the Band number. The result is the set of bands for which the test shall be conducted. The following operators are used:

AND: Set intersection ( $\cap$ ).  $\{n1,n2\} \text{ AND } \{n2,n3\} = \{n2\}$

OR: Set union ( $\cup$ ).  $\{n1,n2\} \text{ OR } \{n2,n3\} = \{n1,n2,n3\}$

NOT: Set complement ( $\setminus$ ), full set being all bands.  $\text{NOT}\{n1\} = \{\text{All bands except } n1\}$

Also note that this is set without repetitions so  $\{n1\} \text{ AND } \{n1\} = \{n1\}$

The following basic sets are used:

$\{n1,n2\}$ : Explicitly given band set

10MHz: All bands supporting 10 MHz

FDD: All bands in FDD mode

NOTE 2: 2Tx(table\_index) includes all supported Bands where 2Tx capability was declared in column "2Tx" in Table table\_index in TS 38.508-2 [8].

NOTE 3: 4Tx(table\_index) includes all supported Bands where 4Tx capability was declared in column "4Tx" in Table table\_index in TS 38.508-2 [8].

Table 4.0-3: Tested CA/DC or V2X Configuration Selection Criteria

| Code  | Tested CA/DC Configuration Selection Criteria                                                                                                                     | Comment                                                                                               |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| E001  | DL_2CC(A.4.3.2A.2.1-3) AND A.4.3.2B.2.0-1/1 AND NOT UL(A.4.3.2A.2.1-2)                                                                                            | All supported intra-band contiguous CA Configurations with 2 carriers in DL but no CA in UL           |
| E002  | DL_2CC(A.4.3.2A.4.1-3) AND A.4.3.2B.2.0-1/1 AND NOT UL(A.4.3.2A.4.1-2)                                                                                            | All supported inter-band CA Configurations with 2 carriers in DL but no CA in UL                      |
| E003  | UL_2CC(A.4.3.2B.2.1-2) AND A.4.3.2B.2.0-2/1                                                                                                                       | All supported Intra-band contiguous EN-DC configurations in FR1 (2UL CCs)                             |
| E003a | DL_2CC(A.4.3.2B.2.1-2) AND A.4.3.2B.2.0-1/1                                                                                                                       | All supported Intra-band contiguous EN-DC configurations in FR1 (2DL CCs)                             |
| E004  | UL_2CC(A.4.3.2B.2.2-2) AND DL_2CC(A.4.3.2B.2.2-2) AND A.4.3.2B.2.0-2/1                                                                                            | All supported Intra-band non-contiguous EN-DC configurations in FR1 (2UL CCs)                         |
| E004a | DL_2CC(A.4.3.2B.2.2-2) AND A.4.3.2B.2.0-1/1                                                                                                                       | All supported Intra-band non-contiguous EN-DC configurations in FR1 (2DL CCs)                         |
| E005  | UL_2CC(A.4.3.2B.2.3.1-2) AND DL_2CC(A.4.3.2B.2.3.1-2) AND A.4.3.2B.2.0-2/1                                                                                        | All supported Inter-band EN-DC configurations within FR1 (2UL CCs)                                    |
| E005a | DL_2CC(A.4.3.2B.2.3.1-2) OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2 AND A.4.3.2B.2.0-1/1                                     | All supported Inter-band EN-DC configurations within FR1 (2DL CCs)                                    |
| E005b | UL_NR_1CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-2A/1                                 | All supported Inter-band EN-DC configurations within FR1 with 1 UL NR CC and one or more LTE UL CC(s) |
| E005c | DL_NR_1CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1A/1                                 | All supported Inter-band EN-DC configurations within FR1 with 1 DL NR CC and one or more LTE DL CC(s) |
| E005d | A.4.3.2B.2.3.1-3                                                                                                                                                  | All supported PC2 Inter-band EN-DC configurations within FR1                                          |
| E005z | UL_3CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-2/2 AND A.4.3.2B.2.0-2A/1               | All supported Inter-band EN-DC configurations within FR1 (2UL E-UTRA CCs, 1UL NR CC)                  |
| E006  | DL_3CC(A.4.3.2B.2.1-2 OR A.4.3.2B.2.2-2 OR A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1/2 | All supported EN-DC configurations within FR1 (3DL CCs)                                               |
| E007  | DL_4CC(A.4.3.2B.2.1-2 OR A.4.3.2B.2.2-2 OR A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1/3 | All supported EN-DC configurations within FR1 (4DL CCs)                                               |
| E008  | DL_5CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1/4                                     | All supported EN-DC configurations within FR1 (5DL CCs)                                               |
| E009  | DL_6CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1/5                                     | All supported EN-DC configurations within FR1 (6DL CCs)                                               |
| E010  | UL_NR_1CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2A/1                                                     | All supported Inter-band EN-DC configurations including FR2 (1UL NR CC)                               |
| E010a | DL_NR_1CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-1A /1                                                    | All supported Inter-band EN-DC configurations including FR2 (1DL NR CC)                               |
| E011  | UL_NR_2CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2/2 AND A.4.3.2B.2.0-2A/2                                | All supported Inter-band EN-DC configurations including FR2 (2UL NR CCs)                              |
| E011a | DL_NR_2CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-1/2 AND A.4.3.2B.2.0-1A/2                                | All supported Inter-band EN-DC configurations including FR2 (2DL NR CCs)                              |
| E012  | UL_NR_3CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2/3 AND NR_A.4.3.2B.2.0-2A/3                             | All supported Inter-band EN-DC configurations including FR2 (3UL NR CCs)                              |
| E012a | DL_NR_3CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-1/3 AND A.4.3.2B.2.0-1A/3                                | All supported Inter-band EN-DC configurations including FR2 (3DL NR CCs)                              |
| E013  | UL_NR_4CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2/4 AND A.4.3.2B.2.0-2A/4                                | All supported Inter-band EN-DC configurations including FR2 (4UL NR CCs)                              |

|       |                                                                                                                                              |                                                                                  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| E013a | DL_NR_4CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-1/4 AND A.4.3.2B.2.0-1A/4           | All supported Inter-band EN-DC configurations including FR2 (4DL NR CCs)         |
| E014  | DL_NR_5CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-1/5 AND A.4.3.2B.2.0-1A/5           | All supported Inter-band EN-DC configurations including FR2 (5DL NR CCs)         |
| E014a | UL_NR_5CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2/4 AND A.4.3.2B.2.0-2A/5           | All supported Inter-band EN-DC configurations including FR2 (5UL NR CCs)         |
| E015  | UL_2CC(A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3) AND DL_2CC(A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3) AND A.4.3.2A.1-2/1 | All supported FR1 2UL CA configurations with DL CA                               |
| E015a | A.4.3.2A.4.1-4                                                                                                                               | All supported PC2 Inter-band CA configurations within FR1                        |
| E015b | A.4.3.2B.1.0-2 AND A.4.3.2B.1.0a.1-2/1                                                                                                       | All supported FR1 2UL NR-DC configurations                                       |
| E016  | DL_2CC(A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3) AND A.4.3.2A.1-1/1                                                                | All supported FR1 2DL CA configurations                                          |
| E017  | DL_3CC(A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3 OR A.4.3.2A.4.2-3) AND A.4.3.2A.1-1/2                                              | All supported FR1 3DL CA configurations                                          |
| E018  | DL_4CC(A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3 OR A.4.3.2A.4.2-3 OR A.4.3.2A.4.3-3) AND A.4.3.2A.1-1/3                            | All supported FR1 4DL CA configurations                                          |
| E018a | DL_5CC(A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3 OR A.4.3.2A.4.2-3 OR A.4.3.2A.4.3-3) AND A.4.3.2A.1-1/4                            | All supported FR1 5DL CA configurations                                          |
| E019  | UL_2CC(ULTxSwitching(A.4.3.2A.4.1-3))                                                                                                        | All supported FR1 2UL CA configurations with 1Tx-2Tx ULTxSwitching capability    |
| E019a | UL_2CC(2Tx_ULTxSwitching(A.4.3.2A.4.1-3))                                                                                                    | All supported FR1 2UL CA configurations with 2Tx-2Tx ULTxSwitching capability    |
| E019b | UL_3CC(ULTxSwitching(A.4.3.2A.4.1-3))                                                                                                        | All supported FR1 3UL CA configurations with 1Tx-2Tx ULTxSwitching capability    |
| E019c | UL_3CC(2Tx_ULTxSwitching(A.4.3.2A.4.1-3))                                                                                                    | All supported FR1 3UL CA configurations with 2Tx-2Tx ULTxSwitching capability    |
| E020  | UL_2CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-2/1                                                               | All supported FR2 2UL CA configurations                                          |
| E021  | UL_3CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-2/2                                                               | All supported FR2 3UL CA configurations                                          |
| E022  | UL_4CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-2/3                                                               | All supported FR2 4UL CA configurations                                          |
| E023  | UL_5CC(A.4.3.2A.2.2-3) AND A.4.3.2A.1-2/4                                                                                                    | All supported FR2 5UL CA configurations                                          |
| E024  | UL_6CC(A.4.3.2A.2.2-3) AND A.4.3.2A.1-2/5                                                                                                    | All supported FR2 6UL CA configurations                                          |
| E025  | UL_7CC(A.4.3.2A.2.2-3) AND A.4.3.2A.1-2/6                                                                                                    | All supported FR2 7UL CA configurations                                          |
| E026  | UL_8CC(A.4.3.2A.2.2-3) AND A.4.3.2A.1-2/7                                                                                                    | All supported FR2 8UL CA configurations                                          |
| E027  | DL_NR_2CC(A.4.3.2B.2.2-2) AND A.4.3.2B.2.0-1A/2                                                                                              | All supported Intra-band non-contiguous EN-DC configurations in FR1 (2DL NR CCs) |
| E028  | DL_NR_3CC(A.4.3.2B.2.2-2) AND A.4.3.2B.2.0-1A/3                                                                                              | All supported Intra-band non-contiguous EN-DC configurations in FR1 (3DL NR CCs) |
| E028a | DL_NR_4CC(A.4.3.2B.2.2-2) AND A.4.3.2B.2.0-1A/4                                                                                              | All supported Intra-band non-contiguous EN-DC configurations in FR1 (4DL NR CCs) |
| E028b | DL_NR_5CC(A.4.3.2B.2.2-2) AND A.4.3.2B.2.0-1A/5                                                                                              | All supported Intra-band non-contiguous EN-DC configurations in FR1 (5DL NR CCs) |
| E029  | DL_NR_2CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1A/2            | All supported Inter-band EN-DC configurations within FR1 (2DL NR CCs)            |
| E030  | DL_NR_3CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1A/3            | All supported Inter-band EN-DC configurations within FR1 (3DL NR CCs)            |
| E030a | DL_NR_4CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1A/4            | All supported Inter-band EN-DC configurations within FR1 (4DL NR CCs)            |
| E030b | DL_NR_5CC(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1A/5            | All supported Inter-band EN-DC configurations within FR1 (5DL NR CCs)            |
| E031  | A.4.3.2C.3-2                                                                                                                                 | All supported FR1 intra-band contiguous 2DL CA with SUL in uplink Configurations |

|       |                                                                                                                                    |                                                                                                 |
|-------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| E031b | ULTxSwitching(A.4.3.2B.2.3.1-2)                                                                                                    | All supported FR1 2UL inter-band EN-DC configurations with ULTxSwitching capability             |
| E032  | DL_2CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-1/1                                                     | All supported FR2 2DL CA configurations                                                         |
| E033  | DL_3CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-1/2                                                     | All supported FR2 3DL CA configurations                                                         |
| E034  | DL_4CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-1/3                                                     | All supported FR2 4DL CA configurations                                                         |
| E035  | DL_5CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-1/4                                                     | All supported FR2 5DL CA configurations                                                         |
| E036  | DL_6CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-1/5                                                     | All supported FR2 6DL CA configurations                                                         |
| E037  | DL_7CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-1/6                                                     | All supported FR2 7DL CA configurations                                                         |
| E038  | DL_8CC(A.4.3.2A.2.2-3 OR A.4.3.2A.3.2-3 OR A.4.3.2A.3.2-3a) AND A.4.3.2A.1-1/7                                                     | All supported FR2 8DL CA configurations                                                         |
| E039  | UL_NR_6CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2/4 AND A.4.3.2B.2.0-2A/6 | All supported Inter-band EN-DC configurations including FR2 (6UL NR CCs)                        |
| E039a | DL_NR_6CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-1/5 AND A.4.3.2B.2.0-1A/5 | All supported Inter-band EN-DC configurations including FR2 (6DL NR CCs)                        |
| E040  | UL_NR_7CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2/4 AND A.4.3.2B.2.0-2A/7 | All supported Inter-band EN-DC configurations including FR2 (7UL NR CCs)                        |
| E040a | DL_NR_7CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-1/5 AND A.4.3.2B.2.0-1A/7 | All supported Inter-band EN-DC configurations including FR2 (7DL NR CCs)                        |
| E041  | UL_NR_8CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2/4 AND A.4.3.2B.2.0-2A/8 | All supported Inter-band EN-DC configurations including FR2 (8UL NR CCs)                        |
| E041a | DL_NR_8CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-1/5 AND A.4.3.2B.2.0-1A/8 | All supported Inter-band EN-DC configurations including FR2 (8DL NR CCs)                        |
| E042  | Table A.4.3.2A.2.1-3a                                                                                                              | All supported FR1 intra-band contiguous CA configuration with UL MIMO capabilities              |
| E043  | UL_NR_1CC(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2) AND A.4.3.2B.2.0-2A/1 AND A.4.3.9-13       | All supported Inter-band EN-DC configurations including FR2 (1UL NR CC) and UL MIMO             |
| E044  | ULTxSwitching(A.4.3.2C.2-1)                                                                                                        | All supported FR1 SUL configurations with 1Tx-2Tx ULTxSwitching capability                      |
| E044a | 2Tx_ULTxSwitching(A.4.3.2C.2-1)                                                                                                    | All supported FR1 SUL configurations with 2Tx-2Tx ULTxSwitching capability                      |
| E044b | ULTxSwitching(A.4.3.2C.3-2)                                                                                                        | All supported FR1 SUL/intra-band CA configurations with 1Tx-2Tx ULTxSwitching capability        |
| E044c | 2Tx_ULTxSwitching(A.4.3.2C.3-2)                                                                                                    | All supported FR1 SUL/intra-band CA configurations with 2Tx-2Tx ULTxSwitching capability        |
| E045  | Table A.4.3.2A.4.1-5                                                                                                               | All supported FR1 inter-band CA configuration with UL MIMO capability (2UL CCs)                 |
| E046  | Table A.4.3.2A.4.1-6                                                                                                               | All supported FR1 inter-band CA configuration with Tx Diversity capability (2UL CCs)            |
| E047  | Table A.4.3.2B.2.3.1-5                                                                                                             | All supported FR1 inter-band EN-DC configuration with UL MIMO capability (2UL CCs)              |
| E048  | Table A.4.3.2B.2.3.1-6                                                                                                             | All supported FR1 inter-band EN-DC configuration with Tx Diversity capability (2UL CCs)         |
| E049  | 3bandsULTxSwitching(Table A.4.3.2C.3-3)                                                                                            | All supported FR1 SUL operation with inter-band CA with ULTxSwitchingBandPair-r18 capability    |
| E050  | Table A.4.3.2E.2-2                                                                                                                 | All supported NR V2X inter-band concurrent operation                                            |
| E051  | Table A.4.3.2E.2-2 OR Table A.4.3.2E.2-1                                                                                           | All supported NR V2X inter-band concurrent operation and NR V2X intra-band concurrent operation |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                            |                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------|
| E052                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Table A.4.3.2E.2-1                         | All supported NR V2X intra-band concurrent operation                                     |
| E053                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | A.4.3.2E.3-3                               | All supported inter-band V2X operation in FR1                                            |
| E054                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3BandsULTxSwitching (Table A.4.3.2A.4.2-3) | All supported FR1 inter-band CA configurations with ULTxSwitchingBandPair-r18 capability |
| E055                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4BandsULTxSwitching (Table A.4.3.2A.4.3-3) | All supported FR1 inter-band CA configurations with ULTxSwitchingBandPair-r18 capability |
| <p>NOTE 1: UL(<i>table_index</i>) includes all supported CA Configurations where at least one UL CA configuration was declared in column "Supported CA Bandwidth Class(es) in UL" in Table <i>table_index</i> in TS 38.508-2 [8].</p> <p>NOTE 2: UL_nCC(<i>table_index</i>) includes all supported CA or DC Configurations where at least one n-carrier UL CA or DC configuration was declared in column "Supported CA Bandwidth Class(es) in UL" or "Supported EN-DC Bandwidth Class(es) in UL" in Table <i>table_index</i> in TS 38.508-2 [8].</p> <p>NOTE 3: UL_NR_nCC(<i>table_index</i>) includes all supported DC Configurations where at least one DC configuration with n-carrier NR UL CA configuration was declared in column "Supported EN-DC Bandwidth Class(es) in UL" in Table <i>table_index</i> in TS 38.508-2 [8].</p> <p>NOTE 4: DL_nCC(<i>table_index</i>) includes all supported n-carrier CA/DC Configurations in Table <i>table_index</i> in TS 38.508-2 [8].</p> <p>NOTE 5: DL_NR_nCC(<i>table_index</i>) includes all supported DC Configurations with n-carrier NR DL CA configuration in Table <i>table_index</i> in TS 38.508-2 [8].</p> <p>NOTE 6: ULTxSwitching(<i>table_index</i>) includes all supported CA/DC/SUL Configurations where at least one uplink band pair was declared in column "Supported ULTxSwitching Band Pair" in Table <i>table_index</i> in TS 38.508-2 [8]. 2Tx_ULTxSwitching(<i>table_index</i>) includes all supported CA/DC/SUL Configurations where at least one uplink band pair was declared in column "Supported 2Tx-2Tx ULTxSwitching Band Pair" in Table <i>table_index</i> in TS 38.508-2 [8]. 3bandsULTxSwitching(<i>table_index</i>) includes all supported CA/DC/SUL Configurations where at least one uplink band pair was declared in column "Supported R18 dynamic UL Tx switching band pair" in Table <i>table_index</i> in TS 38.508-2 [8]. 4bandsULTxSwitching(<i>table_index</i>) includes all supported CA/DC/SUL Configurations where at least one uplink band pair was declared in column "Supported R18 dynamic UL Tx switching band pair" in Table <i>table_index</i> in TS 38.508-2 [8].</p> |                                            |                                                                                          |

**Table 4.0-4: Subtest Selection Criteria for performance and RRM test cases**

| Code               | Tested Bands Selection Criteria                                                                                                                                                                             | Comment                                                                                                                                                                                                                                                                                                                            |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| F001               | A.4.3.2-1/9                                                                                                                                                                                                 | UEs supporting CSI-RS based PRACH                                                                                                                                                                                                                                                                                                  |
| F002               | A.4.3.5-1/1                                                                                                                                                                                                 | UEs supporting long DRX cycle                                                                                                                                                                                                                                                                                                      |
| F003<br>to<br>F013 | Void                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                    |
| F014               | A.4.3.6-1/2A AND A.4.3.6-1/92                                                                                                                                                                               | UEs supporting independentGapConfig for MRDC and Gap Pattern 13                                                                                                                                                                                                                                                                    |
| F015               | A.4.3.5-1/1 AND A.4.3.6-1/2A AND A.4.3.6-1/92                                                                                                                                                               | UEs supporting independentGapConfig for MRDC and long DRX cycle and Gap Pattern 13                                                                                                                                                                                                                                                 |
| F016               | A.4.3.6-1/2 AND A.4.3.6-1/21                                                                                                                                                                                | UEs supporting per-FR gap and Gap Pattern 4                                                                                                                                                                                                                                                                                        |
| F017               | Void                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                    |
| F018               | Void                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                    |
| F019               | A.4.3.5-1/1 AND A.4.3.6-1/2 AND A.4.3.6-1/21                                                                                                                                                                | UEs supporting per-FR gap and long DRX cycle and Gap Pattern 4                                                                                                                                                                                                                                                                     |
| F020               | Void                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                    |
| F021               | Void                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                    |
| F022               | A.4.3.2-1/20                                                                                                                                                                                                | UE supporting alternative additional DMRS position for co-existence with LTE CRS                                                                                                                                                                                                                                                   |
| F023               | A.4.3.2-1/2                                                                                                                                                                                                 | UE supporting 256QAM for PDSCH for FR1                                                                                                                                                                                                                                                                                             |
| F024               | A.4.3.6-1/70                                                                                                                                                                                                | UE supporting per-FR NCSG                                                                                                                                                                                                                                                                                                          |
| F025               | A.4.3.2-1/213                                                                                                                                                                                               | UE supporting crs-IM-nonDSS-15kHzSCS-r17                                                                                                                                                                                                                                                                                           |
| F026               | A.4.3.2-1/214                                                                                                                                                                                               | UE supporting crs-IM-nonDSS-NWA-15kHzSCS-r17                                                                                                                                                                                                                                                                                       |
| F027               | A.4.3.2-1/213 OR A.4.3.2-1/215                                                                                                                                                                              | UE supporting crs-IM-nonDSS-15kHzSCS-r17 OR crs-IM-nonDSS-30kHzSCS-r17                                                                                                                                                                                                                                                             |
| F028               | A.4.3.2-1/214 OR A.4.3.2-1/216                                                                                                                                                                              | UE supporting crs-IM-nonDSS-NWA-15kHzSCS-r17 OR crs-IM-nonDSS-NWA-30kHzSCS-r17                                                                                                                                                                                                                                                     |
| F029               | A.4.3.2-1/203                                                                                                                                                                                               | UEs supporting simultaneous L1-RSRP measurements for more than one cell when the max RTD among the cells is larger than CP length                                                                                                                                                                                                  |
| F030               | Void                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                    |
| F031               | A.4.3.2-1/179 AND NOT (A.4.3.2-1/178)                                                                                                                                                                       | UEs supporting MAC-CE activated separate LTM TCI states and do not support MAC-CE activated joint LTM TCI states                                                                                                                                                                                                                   |
| F032               | A.4.3.2-1/175 AND NOT (A.4.3.2-1/178)                                                                                                                                                                       | UEs supporting unified TCI with joint DL/UL LTM TCI-state indication for LTM procedure and do not support MAC-CE activated jointstates.                                                                                                                                                                                            |
| F033               | A.4.3.2-1/176 AND NOT (A.4.3.2-1/175 OR A.4.3.2-1/178 OR A.4.3.2-1/179)                                                                                                                                     | UEs supporting unified TCI with separate DL/UL LTM TCI-state indication for LTM procedure and do not support MAC-CE activated joint or separate LTM TCI states and do not support unified TCI with joint DL/UL LTM TCI-state indication for LTM procedure                                                                          |
| F034<br>-<br>F042  | Void                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                    |
| F043               | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/191 AND A.4.3.2-1/179 AND A.4.3.2-1/183 AND A.4.3.2-1/186 AND NOT (A.4.3.2-1/178) AND A.4.3.6-1/102 AND A.4.3.2-1/196 THEN R ELSE N/A | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, MAC-CE activated separate LTM TCI states, RACH-less LTM with dynamic grant, intra-frequency L1-RSRP measurement, reporting based on SSB(s) of candidate cell(s) and do not support MAC-CE activated joint LTM TCI states, interruptions caused by PDCCH order |
| F044               | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/183 AND A.4.3.2-1/186 AND A.4.3.2-1/191 AND A.4.3.6-1/102 AND A.4.3.2-1/196 THEN R ELSE N/A                                           | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, RACH-less LTM with dynamic grant, intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s) , interruptions caused by PDCCH order                                                                                                |
| F045               | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/183 AND A.4.3.2-1/186 AND A.4.3.2-1/191 AND A.4.3.2-1/179 AND NOT (A.4.3.2-1/178) AND A.4.3.6-1/102 THEN R ELSE N/A                   | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, MAC-CE activated separate LTM TCI states, RACH-less LTM with dynamic grant and do not support MAC-CE activated joint LTM TCI states, interruptions caused by PDCCH order                                                                                      |
| F046               | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/183 AND A.4.3.2-1/186 AND A.4.3.2-1/191 AND A.4.3.6-1/102 THEN R ELSE N/A                                                             | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, RACH-less LTM with dynamic grant, interruptions caused by PDCCH order                                                                                                                                                                                         |

|      |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                              |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| F047 | IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.2-1/183 AND A.4.3.2-1/184 AND A.4.3.2-1/185 AND A.4.3.2-1/186 AND A.4.3.6-1/102 AND A.4.3.2-1/194 THEN R ELSE N/A | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, RACH-less LTM with dynamic grant and intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s) , interruptions caused by PDCCH order and Support simultaneous transmission to handle the overlap between UL transmission on serving cell(s) and PRACH on candidate cell(s) |
| F048 | IF A.4.3.2-1/224 THEN R ELSE N/A                                                                                                                                                    | UE supporting max-HARQ-ProcessNumber-r17 with 32 HARQ processes                                                                                                                                                                                                                                                                                                              |
| F049 | IF A.4.3.5-1/18 THEN R ELSE N/A                                                                                                                                                     | UE supporting harq-FeedbackDisabled-r17                                                                                                                                                                                                                                                                                                                                      |
| F050 | A.4.3.2-1/78 AND A.4.3.2-1/56                                                                                                                                                       | UE supporting maxNumberActiveTCI-PerBWP other than n1 and maxSimultaneousResourceSetsPerCC atleast 2                                                                                                                                                                                                                                                                         |
| F051 | A.4.3.2-1/178                                                                                                                                                                       | UEs supporting MAC-CE activated joint LTM TCI states                                                                                                                                                                                                                                                                                                                         |

## 4.1 RF conformance test cases

NOTE: To determine applicability of a test case, supported CBW and SCS in the *RF-Parameters* IE (see TS 38.331 [11]) which conveys RF related capabilities for NR operation is taken into account.

4.1.1 FR1 standalone conformance test cases

Table 4.1.1-1: Applicability of RF SA FR1 conformance test cases, ref. TS 38.521-1 [1]

| Clause   | TC Title                                     | Release | Applicability |                                                                             | Tested Bands/CA-Configurations Selection | Branch                     | Additional Information                                                                                                                                                                                                                                                                                         |
|----------|----------------------------------------------|---------|---------------|-----------------------------------------------------------------------------|------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                              |         | Condition     | Comment                                                                     |                                          |                            |                                                                                                                                                                                                                                                                                                                |
| <b>6</b> | <b>Transmitter Characteristics</b>           |         |               |                                                                             |                                          |                            |                                                                                                                                                                                                                                                                                                                |
| 6.2.1    | UE maximum output power                      | Rel-15  | C001          | UEs supporting 5GS FR1 and not supporting RedCap and not supporting eRedCap | D001a                                    | PC1<br>PC2<br>PC3          | TC 6.2.1 is skipped if TC 6.2G.1 is executed.                                                                                                                                                                                                                                                                  |
| 6.2.2    | UE maximum output power reduction            | Rel-15  | C001          | UEs supporting 5GS FR1                                                      | D001a                                    | PC1<br>PC2<br>PC3          | Test execution is not necessary if TS 38.521-1 TC 6.5.2.4.1 is executed.<br>Skip TC 6.2.2 if UE supports NSA and TS 38.521-3 TC 6.2B.2.3 or 6.5B.2.3.3.1 has been executed.<br>TC 6.2.2 is skipped if TC 6.2G.2 is executed.                                                                                   |
| 6.2.3    | UE additional maximum output power reduction | Rel-15  | C001          | UEs supporting 5GS FR1                                                      | D001a                                    | PC1<br>PC2<br>PC3<br>PC1.5 | Test execution is not necessary if TS 38.521-1 TC 6.5.2.3, 6.5.2.4.2 and 6.5.3.3 are executed.<br>Skip TC 6.2.3 if UE supports NSA and TS 38.521-3 TC 6.2B.3.3 has been executed or TS 38.521-3 TCs 6.5B.2.3.2, 6.5B.2.3.3.2 and 6.5B.4.3 have been executed.<br>TC 6.2.3 is skipped if TC 6.2G.3 is executed. |
| 6.2.4    | Configured transmitted power                 | Rel-15  | C001          | UEs supporting 5GS FR1                                                      | D001a                                    | PC1<br>PC2<br>PC3<br>PC1.5 | TC 6.2.4 is skipped if TC 6.2G.4 is executed.                                                                                                                                                                                                                                                                  |

| Clause   | TC Title                                                     | Release | Applicability |                                                                        | Tested Bands/CA-Configurations Selection | Branch                                                                                                                                         | Additional Information                                                                |
|----------|--------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|          |                                                              |         | Condition     | Comment                                                                |                                          |                                                                                                                                                |                                                                                       |
| 6.2A.1.1 | UE maximum output power for CA (2UL CA)                      | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015<br>E015a                            | <b>Inter-band CA:</b> PC2, PC3<br><b>Intra-band contiguous CA</b> (NOTE 1)<br><b>Intra-band non-contiguous CA</b> (NOTE 1)                     |                                                                                       |
| 6.2A.2.1 | UE maximum output power reduction for CA (2UL CA)            | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015<br>E015a                            | <b>Inter-band CA:</b> PC2, PC3<br><b>Intra-band contiguous CA:</b> PC2, PC3<br><b>Intra-band non-contiguous CA:</b> PC2 (NOTE 1), PC3 (NOTE 1) | Test execution is not necessary if TS 38.521-1 TC 6.5A.2.4.1.1 is executed.           |
| 6.2A.3.1 | UE additional maximum output power reduction for CA (2UL CA) | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015<br>E015a                            | <b>Inter-band CA:</b> PC2, PC3<br><b>Intra-band contiguous CA:</b> PC2, PC3<br><b>Intra-band non-contiguous CA</b> (NOTE 1)                    | Test execution is not necessary if TS 38.521-1 TC 6.5A.2.3 and 6.5A.3.3 are executed. |
| 6.2A.4.1 | Configured transmitted power for CA (2UL CA)                 | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015<br>E015a                            | <b>Inter-band CA:</b> PC2, PC3<br><b>Intra-band contiguous CA:</b> PC2, PC3<br><b>Intra-band non-contiguous CA</b> (NOTE 1)                    |                                                                                       |
| 6.2B.1.1 | UE maximum output power for NR-DC                            | Rel-16  | C004a         | UEs supporting 5GS FR1 and NR-DC                                       | E015b                                    |                                                                                                                                                |                                                                                       |
| 6.2B.2.1 | UE maximum output power reduction for NR-DC                  | Rel-16  | C004a         | UEs supporting 5GS FR1 and NR-DC                                       | E015b                                    | <b>PC1</b><br><b>PC2</b><br><b>PC3</b>                                                                                                         | Test execution is not necessary if TS 38.521-1 TC 6.5B.2.4 is executed.               |

| Clause   | TC Title                                                            | Release | Applicability |                                                                                                                                                             | Tested Bands/CA-Configurations Selection | Branch              | Additional Information                                                              |
|----------|---------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------|-------------------------------------------------------------------------------------|
|          |                                                                     |         | Condition     | Comment                                                                                                                                                     |                                          |                     |                                                                                     |
| 6.2B.3.1 | UE additional maximum output power reduction for NR-DC              | Rel-16  | N/A           | No requirements in TS 38.521-1 TC 6.5B.2.3 Additional Spectrum Emission mask for NR-DC and TS 38.521-1 TC 6.5B.3.3 Additional Spurious Emissions for NR-DC. |                                          |                     | Test execution is not necessary if TS 38.521-3 TC 6.5B.2.1.2 has been executed.     |
| 6.2B.4.1 | Configured transmitted power level for NR-DC                        | Rel-16  | C004a         | UEs supporting 5GS FR1 and NR-DC                                                                                                                            | E015b                                    |                     |                                                                                     |
| 6.2C.1   | Configured transmitted power for SUL                                | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                                                                              | D003                                     |                     | NOTE 2                                                                              |
| 6.2C.3   | UE maximum output power for SUL                                     | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                                                                              | D003                                     |                     | NOTE 2                                                                              |
| 6.2C.4   | UE maximum output power reduction for SUL                           | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                                                                              | D003                                     |                     | NOTE 2<br>Test execution is not necessary if TS 38.521-1 TC 6.5C.2.4.1 is executed. |
| 6.2C.5   | UE additional maximum output power reduction for SUL                | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                                                                              | D003                                     |                     | NOTE 2                                                                              |
| 6.2D.1   | UE maximum output power for UL MIMO                                 | Rel-15  | N/A           | No test point applicable to Rel-15 UE                                                                                                                       | D022                                     | PC1.5<br>PC2<br>PC3 |                                                                                     |
|          |                                                                     | Rel-16  | C003b         | UEs supporting 5GS FR1 and ULFPTx                                                                                                                           |                                          |                     |                                                                                     |
| 6.2D.1_1 | UE maximum output power for SUL with UL MIMO                        | Rel-17  | C179b         | UEs supporting 5GS FR1 and SUL and ULFPTx                                                                                                                   | D024                                     |                     |                                                                                     |
| 6.2D.2   | UE maximum output power reduction for UL MIMO                       | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                                                                                                   | D022                                     | PC1.5<br>PC2<br>PC3 | Test execution is not necessary if TS 38.521-1 TC 6.5D.2.4.1 is executed.           |
|          |                                                                     | Rel-16  | C003b         | UEs supporting 5GS FR1 and ULFPTx                                                                                                                           |                                          |                     |                                                                                     |
| 6.2D.2_1 | UE maximum output power reduction for SUL with UL MIMO              | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                                                                                                  | D024                                     | PC2<br>PC3          | Test execution is not necessary if TS 38.521-1 TC 6.5D.2.4.1_1 is executed.         |
| 6.2D.2_2 | UE maximum output power reduction for UL MIMO for UE supporting 4Tx | Rel-18  | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx)                                                                                       | D022a                                    |                     |                                                                                     |

| Clause    | TC Title                                                                       | Release | Applicability |                                                                                                                                                                        | Tested Bands/CA-Configurations Selection | Branch                                                                        | Additional Information                                                                            |
|-----------|--------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
|           |                                                                                |         | Condition     | Comment                                                                                                                                                                |                                          |                                                                               |                                                                                                   |
| 6.2D.3    | UE additional maximum output power reduction for UL MIMO                       | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                                                                                                              | D022                                     | PC1.5<br>PC2<br>PC3                                                           | Test execution is not necessary if TS 38.521-1 TC 6.5D.2.3, 6.5D.2.4.2 and 6.5D.3.3 are executed. |
| 6.2D.3_1  | UE additional maximum output power reduction for SUL with UL MIMO              | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                                                                                                             | D024                                     | PC2<br>PC3                                                                    |                                                                                                   |
| 6.2D.3_2  | UE additional maximum output power reduction for UL MIMO for UE supporting 4Tx | Rel-18  | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx)                                                                                                  | D022a                                    |                                                                               |                                                                                                   |
| 6.2D.4    | Configured transmitted power for UL MIMO                                       | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                                                                                                              | D022                                     | PC1.5<br>PC2<br>PC3                                                           |                                                                                                   |
|           |                                                                                | Rel-16  | C003b         | UEs supporting 5GS FR1 and ULFPTx                                                                                                                                      |                                          |                                                                               |                                                                                                   |
| 6.2D.4_1  | Configured transmitted power for SUL with UL MIMO                              | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                                                                                                             | D024                                     |                                                                               |                                                                                                   |
|           |                                                                                | Rel-17  | C179b         | UEs supporting 5GS FR1 and SUL and ULFPTx                                                                                                                              |                                          |                                                                               |                                                                                                   |
| 6.2D.4_2  | Configured transmitted power for UL MIMO for UE supporting 4Tx                 | Rel-18  | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx)                                                                                                  | D022a                                    |                                                                               |                                                                                                   |
| 6.2E.1.2  | UE maximum output power for V2X / concurrent operation                         | Rel-16  | C079a         | UEs supporting 5GS FR1 and NR sidelink and NR V2X inter-band concurrent operation                                                                                      | E050                                     |                                                                               |                                                                                                   |
| 6.2E.2.1  | UE maximum output power reduction for V2X / non-concurrent operation           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                                 | D016                                     | PC3<br>PC2                                                                    | Test execution is not necessary if TS 38.521-1 TC 6.5E.2.4.1 is executed.                         |
| 6.2E.2.1D | UE maximum output power reduction for V2X / non-concurrent operation / SL-MIMO | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                                     | D016                                     | PC3<br>PC2                                                                    |                                                                                                   |
| 6.2E.2.2  | UE maximum output power reduction for V2X / concurrent operation               | Rel-16  | C079c         | UEs supporting 5GS FR1 and NR sidelink and UEs supporting 5GS FR1 and NR sidelink and NR V2X inter-band concurrent operation or NR V2X intra-band concurrent operation | E051                                     | Inter-band concurrent operation<br>Intra-band concurrent operation: PC3 , PC2 |                                                                                                   |

| Clause    | TC Title                                                                                  | Release | Applicability |                                                                                                                                                                        | Tested Bands/CA-Configurations Selection | Branch                                                                          | Additional Information                                                     |
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|           |                                                                                           |         | Condition     | Comment                                                                                                                                                                |                                          |                                                                                 |                                                                            |
| 6.2E.3.1  | UE additional maximum output power reduction for V2X / non-concurrent operation           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                                 | D016                                     | PC3<br>PC2                                                                      | Test execution is not necessary if TS 38.521-1 TC 6.5E.2.3.1 is executed.  |
| 6.2E.3.1D | UE additional maximum output power reduction for V2X / non-concurrent operation / SL-MIMO | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                                     | D016                                     | PC3<br>PC2                                                                      | Test execution is not necessary if TS 38.521-1 TC 6.5E.2.3.1D is executed. |
| 6.2E.3.2  | UE additional maximum output power reduction for V2X / concurrent operation               | Rel-16  | N/A           | No test case details are specified in TS 38.521-1.                                                                                                                     |                                          |                                                                                 |                                                                            |
| 6.2E.4.1  | Configured transmitted power for V2X / non-concurrent operation                           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                                 | D016                                     | PC3<br>PC2                                                                      |                                                                            |
| 6.2E.4.1D | Configured transmitted power for V2X / non-concurrent operation / SL-MIMO                 | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                                     | D016                                     | PC3<br>PC2                                                                      |                                                                            |
| 6.2E.4.2  | Configured transmitted power for V2X / concurrent operation                               | Rel-16  | C079c         | UEs supporting 5GS FR1 and NR sidelink and UEs supporting 5GS FR1 and NR sidelink and NR V2X inter-band concurrent operation or NR V2X intra-band concurrent operation | E051                                     | Inter-band concurrent operation<br>Intra-band concurrent operation:<br>PC3, PC2 |                                                                            |
| 6.2F.1    | Void                                                                                      |         |               |                                                                                                                                                                        |                                          |                                                                                 |                                                                            |
| 6.2F.2    | UE maximum output power reduction for shared spectrum access                              | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                                               | D018                                     |                                                                                 |                                                                            |
| 6.2F.3    | UE additional maximum output power reduction for shared spectrum access                   | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                                               | D018                                     |                                                                                 |                                                                            |
| 6.2F.4    | Configured transmitted power for shared spectrum access                                   | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                                               | D018                                     |                                                                                 |                                                                            |
| 6.2G.1    | UE maximum output power for Tx Diversity                                                  | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                                                                                                                     | D030                                     | PC1.5<br>PC2<br>PC3                                                             |                                                                            |
| 6.2G.2    | UE maximum output power reduction for Tx Diversity                                        | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                                                                                                                     | D030                                     | PC1.5<br>PC2<br>PC3                                                             | Test execution is not necessary if TS 38.521-1 TC 6.5G.2.3.1 is executed.  |

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|          |                                                                                           |         | Condition     | Comment                                                                |                                          |                     |                                                                                       |
| 6.2G.2_1 | UE maximum output power reduction for Tx Diversity for UE supporting 4Tx                  | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                    | D030a                                    |                     |                                                                                       |
| 6.2G.3   | UE additional maximum output power reduction for Tx Diversity                             | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                     | D030                                     | PC1.5<br>PC2<br>PC3 | Test execution is not necessary if TS 38.521-1 TC 6.5G.2.2 and 6.5G.3.3 are executed. |
| 6.2G.3_1 | UE additional maximum output power reduction for Tx Diversity for UE supporting 4Tx       | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                    | D030a                                    |                     |                                                                                       |
| 6.2G.4   | Configured transmitted power for Tx Diversity                                             | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                     | D030                                     | PC1.5<br>PC2<br>PC3 |                                                                                       |
| 6.2G.4_1 | Configured transmitted power for Tx Diversity for UE supporting 4Tx                       | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                    | D030a                                    |                     |                                                                                       |
| 6.2H.1.2 | UE maximum output power reduction for intra-band UL contiguous CA with UL MIMO            | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          | Test execution is not necessary if TS 38.521-1 TC 6.5H.1.2.1 is executed.             |
| 6.2H.1.3 | UE additional maximum output power reduction for intra-band UL contiguous CA with UL MIMO | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          | Test execution is not necessary if TS 38.521-1 TC 6.5H.1.2.3 is executed.             |
| 6.2H.1.4 | Configured transmitted power for intra-band UL contiguous CA with UL MIMO                 | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                                                                                       |
| 6.2H.3.1 | UE maximum output power for inter-band UL CA with UL MIMO                                 | Rel-17  | C328          | UEs supporting 5GS FR1 and inter-band CA (2UL CA) with UL MIMO.        | E045                                     | PC1.5<br>PC2<br>PC3 |                                                                                       |
| 6.2I.1   | UE maximum output power for RedCap                                                        | Rel-17  | C177          | RedCap UEs supporting 5GS FR1                                          | D001b                                    |                     |                                                                                       |
| 6.2I.2   | UE maximum output power for eRedCap                                                       | Rel-18  | C372          | eRedCap UEs supporting 5GS FR1                                         | D001b                                    |                     |                                                                                       |
| 6.2I.3   | Void                                                                                      |         |               |                                                                        |                                          |                     |                                                                                       |
| 6.2I.4   | Void                                                                                      |         |               |                                                                        |                                          |                     |                                                                                       |
| 6.2J.1   | UE maximum output power for ATG                                                           | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                |
| 6.2J.2   | Configured transmitted power for ATG                                                      | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                |
| 6.2L.3.1 | UE maximum output power for inter-band UL CA with Tx Diversity                            | Rel-17  | C329          | UEs supporting 5GS FR1 and inter-band CA (2UL CA) with Tx Diversity.   | E046                                     | PC1.5<br>PC2<br>PC3 |                                                                                       |

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|----------|-------------------------------------------|---------|---------------|------------------------------------------------------------------------|------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                           |         | Condition     | Comment                                                                |                                          |        |                                                                                                                                                                |
| 6.3.1    | Minimum output power                      | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |        | TC 6.3.1 is skipped if TC 6.3G.1 is executed.                                                                                                                  |
| 6.3.3.2  | General ON/OFF time mask                  | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |        | Skip TC 6.3.3.2 if UE supports NSA and TS 38.521-3 TC 6.3B.3.1 or 6.3B.3.2 or 6.3B.3.3 has been executed.<br>TC 6.3.3.2 is skipped if TC 6.3G.3.1 is executed. |
| 6.3.3.4  | PRACH time mask                           | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |        | Skip TC 6.3.3.4 if UE supports NSA and TS 38.521-3 TC 6.3B.4.1 or 6.3B.4.2 or 6.3B.4.3 has been executed.<br>TC 6.3.3.4 is skipped if TC 6.3G.3.2 is executed. |
| 6.3.3.6  | SRS time mask                             | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |        | TC 6.3.3.6 is skipped if TC 6.3G.3.3 is executed.                                                                                                              |
| 6.3.4.2  | Absolute power tolerance                  | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |        | TC 6.3.4.2 is skipped if TC 6.3G.4.1 is executed.                                                                                                              |
| 6.3.4.3  | Relative power tolerance                  | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |        | TC 6.3.4.3 is skipped if TC 6.3G.4.2 is executed.                                                                                                              |
| 6.3.4.4  | Aggregate power tolerance                 | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |        | TC 6.3.4.4 is skipped if TC 6.3G.4.3 is executed.                                                                                                              |
| 6.3A.1.1 | Minimum output power for CA (2UL CA)      | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     |        |                                                                                                                                                                |
| 6.3A.3.1 | Transmit ON/OFF time mask for CA (2UL CA) | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     |        |                                                                                                                                                                |

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|            |                                                                                                                                                       |         | Condition     | Comment                                                                                               |                                          |        |                        |
| 6.3A.3.2   | Time mask for switching between two uplink carriers                                                                                                   | Rel-16  | C051          | UEs supporting 5GS FR1 and Inter-band CA (2UL CA) and dynamic 1Tx-2Tx UL Tx switching                 | E019                                     |        |                        |
| 6.3A.3.3   | Time mask for switching between two uplink carriers with two transmit antenna connectors                                                              | Rel-17  | C051b         | UEs supporting 5GS FR1 and Inter-band CA (2UL CA) and dynamic 2Tx-2Tx UL Tx switching                 | E019a                                    |        |                        |
| 6.3A.3.4   | Time mask for switching between one uplink band with one transmit antenna connector and one uplink band with two transmit antenna connectors (3UL CA) | Rel-17  | C051d         | UEs supporting 5GS FR1 and inter-band/intra-band CA (3UL CA) and dynamic 1Tx-2Tx UL Tx switching.     | E019b                                    |        |                        |
| 6.3A.3.5   | Time mask for switching between two uplink bands with two transmit antenna connectors (3UL CA)                                                        | Rel-17  | C051f         | UEs supporting 5GS FR1 and inter-band/intra-band CA (3UL CA) and dynamic 2Tx-2Tx UL Tx switching.     | E019c                                    |        |                        |
| 6.3A.3.6   | Time mask for switching across three uplink bands                                                                                                     | Rel-18  | C412          | UEs supporting 5GS FR1 and inter-band CA and dynamic UL Tx switching across three bands.              | E054                                     |        |                        |
| 6.3A.3.6_1 | Time mask for switching across three uplink bands (more than 3CC)                                                                                     | Rel-18  | C413          | UEs supporting 5GS FR1 and inter-band + intra-band CA and dynamic UL Tx switching across three bands. | E054                                     |        |                        |
| 6.3A.3.7   | Time mask for switching across four uplink bands                                                                                                      | Rel-18  | C414          | UEs supporting 5GS FR1 and inter-band CA and dynamic UL Tx switching across four bands.               | E055                                     |        |                        |
| 6.3A.4.1.1 | Absolute power tolerance for CA (2UL CA)                                                                                                              | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity                                | E015                                     |        |                        |
| 6.3A.4.2.1 | Relative power tolerance for CA (2UL CA)                                                                                                              | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity                                | E015                                     |        |                        |
| 6.3A.4.3.1 | Aggregate power tolerance for CA (2UL CA)                                                                                                             | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity                                | E015                                     |        |                        |
| 6.3C.1     | Minimum output power for SUL                                                                                                                          | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                        | D003                                     |        | NOTE 2                 |
| 6.3C.3.1   | General transmit ON/OFF time mask for SUL                                                                                                             | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                        | D003                                     |        | NOTE 2                 |

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|            |                                                                                                                                              |         | Condition     | Comment                                                                                                    |                                          |        |                        |
| 6.3C.3.2   | General transmit ON/OFF time mask for switching between two uplink carriers                                                                  | Rel-16  | C178          | UEs supporting 5GS FR1 and SUL and dynamic UL 1Tx-2Tx switching                                            | E044                                     |        | NOTE 2                 |
| 6.3C.3.3   | Time mask for switching between two uplink carriers with two transmit antenna connectors                                                     | Rel-17  | C178a         | UEs supporting 5GS FR1 and SUL and dynamic UL 2Tx-2Tx switching                                            | E044a                                    |        |                        |
| 6.3C.3.4   | Time mask for switching between one uplink band with one transmit antenna connector and one uplink band with two transmit antenna connectors | Rel-17  | C178b         | UEs supporting 5GS FR1 and SUL with intra-band contiguous CA and dynamic UL 1Tx-2Tx switching              | E044b                                    |        |                        |
| 6.3C.3.5   | Time mask for switching between two uplink bands with two transmit antenna connectors                                                        | Rel-17  | C178c         | UEs supporting 5GS FR1 and SUL with intra-band contiguous CA and dynamic UL 2Tx-2Tx switching              | E044c                                    |        |                        |
| 6.3C.3.6   | Time mask for switching across three uplink bands (3CC)                                                                                      | Rel-18  | C346          | UEs supporting 5GS FR1 and SUL with inter-band CA and dynamic UL switching across three bands              | E049                                     |        |                        |
| 6.3C.3.6_1 | Time mask for switching across three uplink bands (more than 3CC)                                                                            | Rel-18  | C347          | UEs supporting 5GS FR1 and SUL with intra-band + inter-band CA and dynamic UL switching across three bands | E049                                     |        |                        |
| 6.3C.4.1   | Absolute power tolerance for SUL                                                                                                             | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                             | D003                                     |        | NOTE 2                 |
| 6.3C.4.2   | Relative power tolerance for SUL                                                                                                             | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                             | D003                                     |        | NOTE 2                 |
| 6.3C.4.3   | Aggregate power tolerance for SUL                                                                                                            | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                             | D003                                     |        | NOTE 2                 |
| 6.3D.1     | Minimum output power for UL MIMO                                                                                                             | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                                                  | D022                                     |        |                        |
| 6.3D.1_1   | Minimum output power for SUL with UL MIMO                                                                                                    | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                                                 | D024                                     |        |                        |
| 6.3D.1_2   | Minimum output power UL MIMO for UE supporting 4Tx                                                                                           | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO                                                  | D022a                                    |        | NOTE 1                 |
| 6.3D.3     | Transmit ON/OFF time mask for UL MIMO                                                                                                        | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                                                  | D022                                     |        |                        |
| 6.3D.3_1   | Transmit ON/OFF time mask for SUL with UL MIMO                                                                                               | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                                                 | D024                                     |        |                        |

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|             |                                                                        |         | Condition     | Comment                                                   |                                          |                     |                        |
| 6.3D.3_2    | Transmit ON/OFF time mask for UL MIMO for UE supporting 4Tx            | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO | D022a                                    |                     |                        |
| 6.3D.4.1    | Absolute power tolerance for UL MIMO                                   | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO | D022                                     |                     |                        |
| 6.3D.4.1_1  | Absolute power tolerance for SUL with UL MIMO                          | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                | D024                                     |                     |                        |
| 6.3D.4.1_2  | Absolute power tolerance for UL MIMO for UE supporting 4Tx             | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO | D022a                                    |                     |                        |
| 6.3D.4.2    | Relative power tolerance for UL MIMO                                   | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO | D022                                     |                     |                        |
| 6.3D.4.2_1  | Relative power tolerance for SUL with UL MIMO                          | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                | D024                                     |                     |                        |
| 6.3D.4.2_2  | Relative power tolerance for UL MIMO for UE supporting 4Tx             | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO | D022a                                    |                     | NOTE 1                 |
| 6.3D.4.3    | Aggregate power tolerance for UL MIMO                                  | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO | D022                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.3D.4.3_1  | Aggregate power tolerance for SUL with UL MIMO                         | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                | D024                                     |                     |                        |
| 6.3D.4.3_2  | Aggregate power tolerance for UL MIMO for UE supporting 4Tx            | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO | D022a                                    |                     |                        |
| 6.3E.1.1    | Minimum output power for V2X / non-concurrent operation                | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                    | D016                                     |                     |                        |
| 6.3E.1.1D   | Minimum output power for V2X / non-concurrent operation / SL-MIMO      | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO        | D016                                     |                     |                        |
| 6.3E.3.1    | Transmit ON/OFF time mask for V2X / non-concurrent operation           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                    | D016                                     |                     |                        |
| 6.3E.3.1D   | Transmit ON/OFF time mask for V2X / non-concurrent operation / SL-MIMO | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO        | D016                                     |                     |                        |
| 6.3E.4.1.1  | Absolute power tolerance for V2X / non-concurrent operation            | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                    | D016                                     |                     |                        |
| 6.3E.4.1.1D | Absolute power tolerance for V2X / non-concurrent operation / SL-MIMO  | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO        | D016                                     |                     |                        |

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|            |                                                                 |         | Condition     | Comment                                                                  |                                          |                     |                        |
| 6.3F.1     | Minimum output power                                            | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |                     | NOTE 1                 |
| 6.3F.3.2   | General ON/OFF time mask                                        | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |                     |                        |
| 6.3F.4.2   | Absolute power tolerance for shared spectrum access             | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |                     |                        |
| 6.3F.4.3   | Relative power tolerance for shared spectrum channel access     | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |                     |                        |
| 6.3F.4.4   | Aggregate power tolerance for shared spectrum channel access    | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |                     |                        |
| 6.3G.1     | Minimum output power for Tx Diversity                           | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.3G.1_1   | Minimum output power for Tx Diversity for UE supporting 4Tx     | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     | NOTE 1                 |
| 6.3G.3.1   | General ON/OFF time mask for Tx Diversity                       | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.3G.3.1_1 | General ON/OFF time mask for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     |                        |
| 6.3G.3.2   | PRACH time mask for Tx Diversity                                | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.3G.3.3   | SRS time mask for Tx Diversity                                  | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.3G.4.1   | Absolute power tolerance for Tx Diversity                       | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.3G.4.1_1 | Absolute power tolerance for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     |                        |
| 6.3G.4.2   | Relative power tolerance for Tx Diversity                       | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.3G.4.2_1 | Relative power tolerance for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     | NOTE 1                 |

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|            |                                                                        |         | Condition     | Comment                                                                |                                          |                     |                                                                                                                                                                      |
| 6.3G.4.3   | Aggregate power tolerance for Tx Diversity                             | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                     | D030                                     | PC1.5<br>PC2<br>PC3 |                                                                                                                                                                      |
| 6.3G.4.3_1 | Aggregate power tolerance for Tx Diversity for UE supporting 4Tx       | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                    | D030a                                    |                     |                                                                                                                                                                      |
| 6.3H.1.1   | Minimum output power for intra-band UL contiguous CA with UL MIMO      | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                                                                                                                                                                      |
| 6.3H.1.3   | Transmit ON/OFF time mask for intra-band UL contiguous CA with UL MIMO | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                                                                                                                                                                      |
| 6.3J.1     | Minimum output power for ATG                                           | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                                                                                               |
| 6.3J.3.1   | General ON/OFF time mask for ATG                                       | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                                                                                               |
| 6.3J.3.3   | PRACH time mask for ATG                                                | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                                                                                               |
| 6.3J.3.4   | SRS time mask for ATG                                                  | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                                                                                               |
| 6.3J.4.1   | Absolute power tolerance for ATG                                       | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                                                                                               |
| 6.3J.4.2   | Relative power tolerance for ATG                                       | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                                                                                               |
| 6.3J.4.3   | Aggregate power tolerance for ATG                                      | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                                                                                                                                                               |
| 6.4.1      | Frequency error                                                        | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |                     | Skip TC 6.4.1 if UE supports NSA and TS 38.521-3 TC 6.4B.1.1 or 6.4B.1.2 or 6.4B.1.3 has been executed.<br>TC 6.4.1 is skipped if TC 6.4G.1 is executed.             |
| 6.4.2.1    | Error vector magnitude                                                 | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |                     | Skip TC 6.4.2.1 if UE supports NSA and TS 38.521-3 TC 6.4B.2.1.1 or 6.4B.2.2.1 or 6.4B.2.3.1 has been executed.<br>TC 6.4.2.1 is skipped if TC 6.4G.2.1 is executed. |
| 6.4.2.1a   | Error Vector Magnitude including symbols with transient period         | Rel-16  | C156          | UEs supporting 5GS FR1 AND Band supporting enhancedUL-TransientPeriod  | D001a                                    |                     |                                                                                                                                                                      |

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|         |                                               |         | Condition     | Comment                                                                                        |                                          |        |                                                                                                                                                                   |
| 6.4.2.2 | Carrier leakage                               | Rel-15  | C001          | UEs supporting 5GS FR1                                                                         | D001a                                    |        | Skip TC 6.4.2.2 if UE supports NSA and TS 38.521-3 TC 6.4B.2.1.2 or 6.4B.2.2.2 or 6.4B.2.3.2 has been executed. TC 6.4.2.2 is skipped if TC 6.4G.2.2 is executed. |
| 6.4.2.3 | In-band emissions                             | Rel-15  | C001          | UEs supporting 5GS FR1                                                                         | D001a                                    |        | Skip TC 6.4.2.3 if UE supports NSA and TS 38.521-3 TC 6.4B.2.2.3 or 6.4B.2.3.3 has been executed. TC 6.4.2.3 is skipped if TC 6.4G.2.3 is executed.               |
| 6.4.2.4 | EVM equalizer spectrum flatness               | Rel-15  | C001          | UEs supporting 5GS FR1                                                                         | D001a                                    |        | Skip TC 6.4.2.4 if UE supports NSA and TS 38.521-3 TC 6.4B.2.1.4 or 6.4B.2.2.4 or 6.4B.2.3.4 has been executed. TC 6.4.2.4 is skipped if TC 6.4G.2.4 is executed. |
| 6.4.2.5 | EVM equalizer spectrum flatness for Pi/2 BPSK | Rel-15  | C050          | UEs supporting 5GS FR1 Power Class 3 and pi/2-BPSK modulation scheme for power boosting in FR1 | D017a                                    |        |                                                                                                                                                                   |
|         |                                               | Rel-16  | C111          | UEs supporting 5GS FR1 and pi/2-BPSK modulation scheme and low PAPR DMRS                       | D001a                                    |        |                                                                                                                                                                   |

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|            |                                                 |         | Condition     | Comment                                                                                                                                                                                          |                                          |                                                                                   |                        |
| 6.4.2.6    | Phase continuity requirements for DMRS bundling | Rel-17  | C337          | UEs supporting 5GS FR1, <i>dmrs-BundlingPUCCH-Rep-r17</i> and either <i>dmrs-BundlingPUSCH-multiSlot-r17</i> or <i>dmrs-BundlingPUSCH-RepTypeA-r17</i> or <i>dmrs-BundlingPUSCH-RepTypeB-r17</i> | D001a                                    |                                                                                   | NOTE 1                 |
| 6.4A.1.1   | Frequency error for CA (2UL CA)                 | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA and not supporting Tx Diversity)                                                                                                                           | E015                                     | Inter-band CA<br>Intra-band contiguous CA<br>Intra-band non-contiguous CA         |                        |
| 6.4A.2.1.1 | Error vector magnitude for CA (2UL CA)          | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA and not supporting Tx Diversity)                                                                                                                           | E015                                     | Inter-band CA<br>Intra-band contiguous CA<br>Intra-band non-contiguous CA         |                        |
| 6.4A.2.2.1 | Carrier leakage for CA (2UL CA)                 | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA and not supporting Tx Diversity)                                                                                                                           | E015                                     | Inter-band CA<br>Intra-band contiguous CA<br>Intra-band non-contiguous CA(NOTE 1) |                        |
| 6.4A.2.3.1 | In-band emissions for CA (2UL CA)               | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA and not supporting Tx Diversity)                                                                                                                           | E015                                     | Inter-band CA<br>Intra-band contiguous CA<br>Intra-band non-contiguous CA         |                        |
| 6.4C.1     | Frequency error for SUL                         | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                                                                                                                                   | D003                                     |                                                                                   | NOTE 2                 |

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| 6.4C.2.1   | Error vector magnitude for SUL                           | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                   | D003                                     |        | NOTE 2                 |
| 6.4C.2.2   | Carrier leakage for SUL                                  | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                   | D003                                     |        | NOTE 2                 |
| 6.4C.2.3   | In-band emissions for SUL                                | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                   | D003                                     |        | NOTE 2                 |
| 6.4C.2.4   | EVM equalizer spectrum flatness for SUL                  | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                                   | D003                                     |        | NOTE 2                 |
| 6.4C.2.5   | EVM equalizer spectrum flatness for Pi/2 BPSK for SUL    | Rel-16  | C112          | UEs supporting 5GS FR1 and SUL and pi/2-BPSK modulation scheme and low PAPR DMRS | D003                                     |        | NOTE 2                 |
| 6.4D.1     | Frequency error for UL MIMO                              | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                        | D022                                     |        |                        |
| 6.4D.1_1   | Frequency error for SUL with UL MIMO                     | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                       | D024                                     |        |                        |
| 6.4D.1_2   | Frequency error for UL MIMO for UE supporting 4Tx        | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO                        | D022a                                    |        |                        |
| 6.4D.2.1   | Error vector magnitude for UL MIMO                       | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                        | D022                                     |        |                        |
| 6.4D.2.1_1 | Error Vector Magnitude for SUL with UL MIMO              | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                       | D024                                     |        |                        |
| 6.4D.2.1_2 | Error Vector Magnitude for UL MIMO for UE supporting 4Tx | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO                        | D022a                                    |        |                        |
| 6.4D.2.2   | Carrier leakage for UL MIMO                              | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                        | D022                                     |        |                        |
| 6.4D.2.2_1 | Carrier leakage for SUL with UL MIMO                     | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                       | D024                                     |        |                        |
| 6.4D.2.2_2 | Carrier leakage for UL MIMO for UE supporting 4Tx        | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO                        | D022a                                    |        |                        |
| 6.4D.2.3   | In-band emissions for UL MIMO                            | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO                        | D022                                     |        |                        |
| 6.4D.2.3_1 | In-band emissions for SUL with UL MIMO                   | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                                       | D024                                     |        |                        |

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| 6.4D.2.3_2  | In-band emissions for UL MIMO for UE supporting 4Tx                          | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO | D022a                                    |        |                        |
| 6.4D.2.4    | EVM equalizer spectrum flatness for UL MIMO                                  | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO | D022                                     |        |                        |
| 6.4D.2.4_1  | EVM equalizer spectrum flatness for SUL with UL MIMO                         | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                | D024                                     |        |                        |
| 6.4D.2.4_2  | EVM equalizer spectrum flatness for UL MIMO for UE supporting 4Tx            | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO | D022a                                    |        |                        |
| 6.4D.3      | Time alignment error for UL MIMO                                             | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO | D022                                     |        |                        |
| 6.4D.3_1    | Time alignment error for SUL with UL MIMO                                    | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                | D024                                     |        |                        |
| 6.4D.3_2    | Time alignment error for UL MIMO for UE supporting 4Tx                       | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO | D022a                                    |        |                        |
| 6.4D.4      | Requirements for coherent UL MIMO                                            | FFS     | FFS           | FFS                                                       | FFS                                      |        | NOTE 1                 |
| 6.4E.1.1    | Frequency error for V2X / non-concurrent operation                           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                    | D016                                     |        |                        |
| 6.4E.1.1D   | Frequency error for V2X / non-concurrent operation / SL-MIMO                 | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO        | D016                                     |        |                        |
| 6.4E.2.2.1  | Error Vector Magnitude for V2X / non-concurrent operation                    | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                    | D016                                     |        |                        |
| 6.4E.2.2.1D | Error Vector Magnitude for V2X / non-concurrent operation / SL-MIMO          | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO        | D016                                     |        |                        |
| 6.4E.2.3.1  | Carrier leakage for V2X / non-concurrent operation                           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                    | D016                                     |        |                        |
| 6.4E.2.3.1D | Carrier leakage for V2X / non-concurrent operation / SL-MIMO                 | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO        | D016                                     |        |                        |
| 6.4E.2.4.1  | In-band emissions for V2X / non-concurrent operation                         | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                    | D016                                     |        |                        |
| 6.4E.2.4.1D | In-band emissions for V2X / non-concurrent operation / SL-MIMO               | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO        | D016                                     |        |                        |
| 6.4E.2.5.1  | EVM equalizer spectrum flatness for V2X / non-concurrent operation           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                    | D016                                     |        |                        |
| 6.4E.2.5.1D | EVM equalizer spectrum flatness for V2X / non-concurrent operation / SL-MIMO | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO        | D016                                     |        |                        |

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|            |                                                                        |         | Condition     | Comment                                                                  |                                          |                     |                        |
| 6.4F.1     | Frequency error                                                        | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |                     | NOTE 1                 |
| 6.4F.2.1   | Error Vector Magnitude                                                 | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |                     | NOTE 1                 |
| 6.4F.2.2   | Carrier leakage                                                        | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |                     | NOTE 1                 |
| 6.4G.1     | Frequency error for Tx Diversity                                       | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.4G.1_1   | Frequency error for Tx Diversity for UE supporting 4Tx                 | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     |                        |
| 6.4G.2.1   | Error vector magnitude for Tx Diversity                                | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.4G.2.1_1 | Error Vector Magnitude for Tx Diversity for UE supporting 4Tx          | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     |                        |
| 6.4G.2.2   | Carrier leakage for Tx Diversity                                       | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.4G.2.2_1 | Carrier leakage for Tx Diversity for UE supporting 4Tx                 | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     |                        |
| 6.4G.2.3   | In-band emissions for Tx Diversity                                     | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting                                    | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.4G.2.3_1 | In-band emissions for Tx Diversity for UE supporting 4Tx               | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     |                        |
| 6.4G.2.4   | EVM equalizer spectrum flatness for Tx Diversity                       | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting Tx Diversity                       | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.4G.2.4_1 | EVM equalizer spectrum flatness for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |                     |                        |
| 6.4H.1.1   | Frequency error for intra-band UL contiguous CA with UL MIMO           | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO.   | E042                                     | PC2<br>PC3          |                        |
| 6.4H.1.2.1 | Error Vector Magnitude for intra-band UL contiguous CA with UL MIMO    | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO.   | E042                                     | PC2<br>PC3          |                        |

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|            |                                                                        |         | Condition     | Comment                                                                |                                          |                   |                                                                                                                                                     |
| 6.4H.1.2.2 | Carrier leakage for intra-band UL contiguous CA with UL MIMO           | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3        |                                                                                                                                                     |
| 6.4H.1.2.3 | In-band emissions for intra-band UL contiguous CA with UL MIMO         | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3        |                                                                                                                                                     |
| 6.4H.1.3   | Time alignment error for intra-band UL contiguous CA with UL MIMO      | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3        |                                                                                                                                                     |
| 6.4H.1.4   | Coherent UL MIMO for intra-band UL contiguous CA with UL MIMO          | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3        | NOTE 1                                                                                                                                              |
| 6.4J.1     | Frequency error for ATG                                                | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                   |                                                                                                                                                     |
| 6.4J.2.1   | Error Vector Magnitude for ATG                                         | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                   |                                                                                                                                                     |
| 6.4J.2.1a  | Error Vector Magnitude including symbols with transient period for ATG | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                   |                                                                                                                                                     |
| 6.4J.2.4   | EVM equalizer spectrum flatness for ATG                                | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                   |                                                                                                                                                     |
| 6.4J.2.5   | EVM equalizer spectrum flatness for Pi/2 BPSK for ATG                  | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                   |                                                                                                                                                     |
| 6.5.1      | Occupied bandwidth                                                     | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |                   | Skip TC 6.5.1 if UE supports NSA and TS 38.521-3 TC 6.5B.1.2 or 6.5B.1.3 has been executed. TC 6.5.1 is skipped if TC 6.5G.1 is executed.           |
| 6.5.2.2    | Spectrum emission mask                                                 | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    | PC1<br>PC2<br>PC3 | Skip TC 6.5.2.2 if UE supports NSA and TS 38.521-3 TC 6.5B.2.2.1 or 6.5B.2.3.1 has been executed. TC 6.5.2.2 is skipped if TC 6.5G.2.1 is executed. |

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|           |                                   |         | Condition     | Comment                    |                                          |                   |                                                                                                                                                                                               |
| 6.5.2.3   | Additional spectrum emission mask | Rel-15  | C001          | UEs supporting 5GS FR1     | D001a                                    | PC1<br>PC2<br>PC3 | Skip TC 6.5.2.3 if UE supports NSA and TS 38.521-3 TC 6.5B.2.3.2 has been executed. TC 6.5.2.3 is skipped if TC 6.5G.2.2 is executed.                                                         |
| 6.5.2.4.1 | NR ACLR                           | Rel-15  | C001          | UEs supporting 5GS FR1     | D001a                                    | PC1<br>PC2<br>PC3 | Skip TC 6.5.2.4.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.3.3.1 has been executed. TC 6.5.2.4.1 is skipped if TC 6.5G.2.3.1 is executed.                                                 |
| 6.5.2.4.2 | UTRA ACLR                         | Rel-15  | C001a         | UEs supporting 5GS FR1 PC3 | D001a                                    |                   | Skip TC 6.5.2.4.2 if UE supports NSA and TS 38.521-3 TC 6.5B.2.3.3.2 has been executed. TC 6.5.2.4.2 is skipped if TC 6.5G.2.3.2 is executed.                                                 |
| 6.5.3.1   | General spurious emissions        | Rel-15  | C001          | UEs supporting 5GS FR1     | D001a                                    |                   | Skip TC 6.5.3.1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.1.1 or 6.5B.3.2.1 or 6.5B.3.3.1(non-exception requirements) has been executed. TC 6.5.3.1 is skipped if TC 6.5G.3.1 is executed. |

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|            |                                        |         | Condition     | Comment                                                                |                                          |                                                                                                                            |                                                                                                                                        |
| 6.5.3.2    | Spurious emissions for UE co-existence | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |                                                                                                                            | Skip TC 6.5.3.2 if UE supports NSA and TS 38.521-3 TC 6.5B.3.3.2 (non-exception requirements) has been executed.                       |
| 6.5.3.3    | Additional spurious emissions          | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |                                                                                                                            | Skip TC 6.5.3.3 if UE supports NSA and TS 38.521-3 TC 6.5B.4.3 has been executed.<br>TC 6.5.3.3 is skipped if TC 6.5G.3.3 is executed. |
| 6.5.4      | Transmit intermodulation               | Rel-15  | C001          | UEs supporting 5GS FR1                                                 | D001a                                    |                                                                                                                            | Skip TC 6.5.4 if UE supports NSA and TS 38.521-3 TC 6.5B.5.3 has been executed.<br>TC 6.5.4 is skipped if TC 6.5G.4 is executed.       |
| 6.5A.1.1   | Occupied bandwidth for CA (2UL CA)     | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     | <b>Inter-band CA</b><br><b>Intra-band contiguous CA</b><br><b>Intra-band non-contiguous CA: PC2 (NOTE 1), PC3 (NOTE 1)</b> |                                                                                                                                        |
| 6.5A.2.2.1 | Spectrum emission mask for CA (2UL CA) | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015<br>E015a                            | <b>Inter-band CA: PC2, PC3</b><br><b>Intra-band contiguous CA: PC2, PC3</b><br><b>Intra-band non-contiguous CA</b>         |                                                                                                                                        |

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|              |                                                        |         | Condition     | Comment                                                                |                                          |                                                                                                                                         |                                                                                                                                |
| 6.5A.2.3.1   | Additional spectrum emission mask for CA (2UL CA)      | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     | <b>Inter-band CA: PC2, PC3</b><br><b>Intra-band contiguous CA: PC2, PC3</b><br>Intra-band non-contiguous CA (NOTE 1)                    |                                                                                                                                |
| 6.5A.2.4.1.1 | NR ACLR for CA (2UL CA)                                | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015<br>E015a                            | <b>Inter-band CA: PC2, PC3</b><br><b>Intra-band contiguous CA: PC2, PC3</b><br>Intra-band non-contiguous CA: PC2 (NOTE 1), PC3 (NOTE 1) |                                                                                                                                |
| 6.5A.2.4.2.1 | UTRA ACLR for CA (2UL CA)                              | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     |                                                                                                                                         |                                                                                                                                |
| 6.5A.3.1.1   | General spurious emissions for CA (2UL CA)             | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     | <b>Inter-band CA</b><br><b>Intra-band contiguous CA: PC2, PC3</b>                                                                       |                                                                                                                                |
| 6.5A.3.2.1   | Spurious emissions for UE co-existence for CA (2UL CA) | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     | <b>Inter-band CA</b><br><b>Intra-band contiguous CA: PC2, PC3</b><br>Intra-band non-contiguous CA                                       | NOTE 3<br>Skip the testing if UE supports NSA and the same UL DC configuration and TS 38.521-3 TC 6.5B.3.3.2 has been executed |
| 6.5A.3.3.1   | Additional spurious emissions for CA (2UL CA)          | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     | <b>Inter-band CA: PC2, PC3</b><br><b>Intra-band contiguous CA: PC2, PC3</b><br>Intra-band non-contiguous CA (NOTE 1)                    |                                                                                                                                |

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|------------|------------------------------------------------------|---------|---------------|------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|            |                                                      |         | Condition     | Comment                                                                |                                          |                                                                           |                                                                                                                                          |
| 6.5A.4.1   | Transmit intermodulation for CA (2UL CA)             | Rel-15  | C004          | UEs supporting 5GS FR1 and CA (2UL CA) and not supporting Tx Diversity | E015                                     | Inter-band CA<br>Intra-band contiguous CA<br>Intra-band non-contiguous CA |                                                                                                                                          |
| 6.5C.1     | Occupied bandwidth for SUL                           | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2                                                                                                                                   |
| 6.5C.2.2   | Spectrum emission mask for SUL                       | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2                                                                                                                                   |
| 6.5C.2.3   | Additional spectrum emission mask for SUL            | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2                                                                                                                                   |
| 6.5C.2.4.1 | NR ACLR for SUL                                      | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2                                                                                                                                   |
| 6.5C.2.4.2 | UTRA ACLR for SUL                                    | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2                                                                                                                                   |
| 6.5C.3.1   | General spurious emissions for SUL                   | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2                                                                                                                                   |
| 6.5C.3.2   | Spurious emissions for UE co-existence for SUL       | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2<br>NOTE 3<br>Skip the testing if UE supports NSA and the same UL DC configuration and TS 38.521-3 TC 6.5B.3.3.2 has been executed |
| 6.5C.3.3   | Additional spurious emissions for SUL                | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2                                                                                                                                   |
| 6.5C.4     | Transmit intermodulation for SUL                     | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                         | D003                                     |                                                                           | NOTE 2                                                                                                                                   |
| 6.5D.1     | Occupied bandwidth for UL MIMO                       | Rel-15  | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO              | D022                                     |                                                                           |                                                                                                                                          |
| 6.5D.1_2   | Occupied bandwidth for SUL with UL MIMO              | Rel-17  | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                             | D024                                     |                                                                           |                                                                                                                                          |
| 6.5D.1_3   | Occupied bandwidth for UL MIMO for UE supporting 4Tx | Rel-18  | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO              | D022a                                    |                                                                           |                                                                                                                                          |

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|              |                                                                     |             | Condition     | Comment                                                               |                                          |        |                        |
| 6.5D.2.2     | Spectrum emission mask for UL MIMO                                  | Rel-15      | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
|              |                                                                     | Rel-16      | C003b         | UEs supporting 5GS FR1 and ULFPTx                                     |                                          |        |                        |
| 6.5D.2.2_1   | Spectrum emission mask for SUL with UL MIMO                         | Rel-17      | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                            | D024                                     |        |                        |
|              |                                                                     | Rel-17      | C179b         | UEs supporting 5GS FR1 and SUL and ULFPTx                             |                                          |        |                        |
| 6.5D.2.2_2   | Spectrum emission mask for UL MIMO for UE supporting 4Tx            | Rel-18      | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx) | D022a                                    |        | NOTE 1                 |
| 6.5D.2.3     | Additional spectrum emission mask for UL MIMO                       | Rel-15      | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        | NOTE 1                 |
| 6.5D.2.3_1   | Additional spectrum emission mask for UL MIMO for UE supporting 4Tx | Rel-18      | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx) | D022a                                    |        |                        |
| 6.5D.2.4.1   | NR ACLR for UL MIMO                                                 | Rel-15      | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
|              |                                                                     | Rel-16      | C003b         | UEs supporting 5GS FR1 and ULFPTx                                     |                                          |        |                        |
| 6.5D.2.4.1_1 | NR ACLR for SUL with UL MIMO                                        | Rel-17      | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                            | D024                                     |        |                        |
| 6.5D.2.4.1_2 | NR ACLR for UL MIMO for UE supporting 4Tx                           | Rel-18      | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx) | D022a                                    |        | NOTE 1                 |
| 6.5D.2.4.2   | UTRA ACLR for UL MIMO                                               | Rel-15      | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
| 6.5D.2.4.2_1 | UTRA ACLR for SUL with UL MIMO                                      | Rel-17      | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                            | D024                                     |        |                        |
| 6.5D.2.4.2_2 | UTRA ACLR for UL MIMO for UE supporting 4Tx                         | Rel-18      | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx) | D022a                                    |        | NOTE 1                 |
| 6.5D.3.1     | General spurious emissions for UL MIMO                              | Rel-15 only | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
| 6.5D.3.2     | Spurious emissions for UE co-existence for UL MIMO                  | Rel-15 only | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |

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|            |                                                                          |             | Condition     | Comment                                                               |                                          |        |                        |
| 6.5D.3.3   | Additional spurious emissions for UL MIMO                                | Rel-15 only | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
| 6.5D.3_1.1 | General spurious emissions for UL MIMO (Rel-16 onward)                   | Rel-16      | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
|            |                                                                          | Rel-16      | C003b         | UEs supporting 5GS FR1 and ULFPTx                                     |                                          |        |                        |
| 6.5D.3_1.2 | Spurious emission for UE co-existence for UL MIMO (Rel-16 onward)        | Rel-16      | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
|            |                                                                          | Rel-16      | C003b         | UEs supporting 5GS FR1 and ULFPTx                                     |                                          |        |                        |
| 6.5D.3_1.3 | Additional spurious emissions for UL MIMO (Rel-16 onward)                | Rel-16      | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
|            |                                                                          | Rel-16      | C003b         | UEs supporting 5GS FR1 and ULFPTx                                     |                                          |        |                        |
| 6.5D.3_2.1 | General spurious emissions for SUL with UL MIMO                          | Rel-17      | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                            | D024                                     |        |                        |
| 6.5D.3_2.2 | Spurious emissions for UE co-existence for SUL with UL MIMO              | Rel-17      | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                            | D024                                     |        |                        |
| 6.5D.3_2.3 | Additional spurious emissions for SUL with UL MIMO                       | Rel-17      | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                            | D024                                     |        |                        |
| 6.5D.3_3.1 | General spurious emissions for UL MIMO for UE supporting 4Tx             | Rel-18      | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx) | D022a                                    |        | NOTE 1                 |
| 6.5D.3_3.2 | Spurious emissions for UE co-existence for UL MIMO for UE supporting 4Tx | Rel-18      | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx) | D022a                                    |        | NOTE 1                 |
| 6.5D.3_3.3 | Additional spurious emissions for UL MIMO for UE supporting 4Tx          | Rel-18      | C402          | UEs supporting 5GS FR1 and (4-layer codebook based UL MIMO or ULFPTx) | D022a                                    |        | NOTE 1                 |
| 6.5D.4     | Transmit intermodulation for UL MIMO                                     | Rel-15      | C003          | UEs supporting 5GS FR1 and 2-layer codebook based UL MIMO             | D022                                     |        |                        |
| 6.5D.4_1   | Transmit intermodulation for SUL with UL MIMO                            | Rel-17      | C179          | UEs supporting 5GS FR1 and SUL and UL MIMO                            | D024                                     |        |                        |
| 6.5D.4_2   | Transmit intermodulation for UL MIMO for UE supporting 4Tx               | Rel-18      | C400          | UEs supporting 5GS FR1 and 4-layer codebook based UL MIMO             | D022a                                    |        |                        |

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|-------------|-------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------|------------------------|
|             |                                                                                     |         | Condition     | Comment                                                                                                                                                |                                          |                                                                                   |                        |
| 6.5E.1.1    | Occupied bandwidth for V2X / non-concurrent operation                               | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                 | D016                                     |                                                                                   |                        |
| 6.5E.1.1D   | Occupied bandwidth for V2X / non-concurrent operation / SL-MIMO                     | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                     | D016                                     |                                                                                   |                        |
| 6.5E.2.2.1  | Spectrum emission mask for V2X / non-concurrent operation                           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                 | D016                                     |                                                                                   |                        |
| 6.5E.2.2.1D | Spectrum emission mask for V2X / non-concurrent operation / SL-MIMO                 | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                     | D016                                     |                                                                                   |                        |
| 6.5E.2.2.2  | Spectrum emission mask for V2X / concurrent operation                               | Rel-16  | C079c         | UEs supporting 5GS FR1 and NR sidelink and UEs supporting 5GS FR1 and NR V2X inter-band concurrent operation or NR V2X intra-band concurrent operation | E051                                     | Inter-band concurrent operation: PC3<br>Intra-band concurrent operation: PC3, PC2 |                        |
| 6.5E.2.3.1  | Additional Spectrum emission mask for V2X / non-concurrent operation                | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                 | D016                                     |                                                                                   |                        |
| 6.5E.2.3.1D | Additional Spectrum emission mask for V2X / non-concurrent operation / SL-MIMO      | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                     | D016                                     |                                                                                   |                        |
| 6.5E.2.4.1  | Adjacent channel leakage ratio for V2X / non-concurrent operation                   | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                 | D016                                     |                                                                                   |                        |
| 6.5E.2.4.1D | Adjacent channel leakage ratio for V2X / non-concurrent operation / SL-MIMO         | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                     | D016                                     |                                                                                   | NOTE 1                 |
| 6.5E.2.4.2  | Adjacent channel leakage for V2X / concurrent operation                             | Rel-16  | C079c         | UEs supporting 5GS FR1 and NR sidelink and UEs supporting 5GS FR1 and NR V2X inter-band concurrent operation or NR V2X intra-band concurrent operation | E051                                     | Inter-band concurrent operation: PC3<br>Intra-band concurrent operation: PC3, PC2 |                        |
| 6.5E.3.1.1  | General spurious emissions for V2X / non-concurrent operation                       | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                 | D016                                     |                                                                                   |                        |
| 6.5E.3.1.1D | General spurious emissions for V2X / non-concurrent operation / SL-MIMO             | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                     | D016                                     |                                                                                   |                        |
| 6.5E.3.2.1  | Spurious emissions for UE co-existence for V2X / non-concurrent operation           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                 | D016                                     |                                                                                   | NOTE 1                 |
| 6.5E.3.2.1D | Spurious emissions for UE co-existence for V2X / non-concurrent operation / SL-MIMO | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                     | D016                                     |                                                                                   |                        |

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|            |                                                                                  |         | Condition     | Comment                                                                                                                                                |                                          |                                                                                   |                        |
| 6.5E.3.2.2 | Spurious emissions for UE co-existence for V2X / concurrent operation            | Rel-16  | C079c         | UEs supporting 5GS FR1 and NR sidelink and UEs supporting 5GS FR1 and NR V2X inter-band concurrent operation or NR V2X intra-band concurrent operation | E051                                     | Inter-band concurrent operation: PC3<br>Intra-band concurrent operation: PC3, PC2 |                        |
| 6.5E.3.3.1 | Additional spurious emissions requirements for V2X / non-concurrent operation    | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                 | D016                                     |                                                                                   |                        |
| 6.5E.4.1   | Transmit intermodulation for V2X / non-concurrent operation                      | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                                                                 | D016                                     |                                                                                   |                        |
| 6.5E.4.1D  | Transmit intermodulation for V2X / non-concurrent operation / SL-MIMO            | Rel-16  | C079b         | UEs supporting 5GS FR1 and NR sidelink and SL-MIMO                                                                                                     | D016                                     |                                                                                   |                        |
| 6.5E.4.2   | Transmit intermodulation for V2X con-current operation                           | Rel-16  | C079d         | UEs supporting 5GS FR1 and NR sidelink and UEs supporting 5GS FR1 and NR V2X intra-band concurrent operation                                           | E052                                     | Intra-band concurrent operation: PC3, PC2                                         |                        |
| 6.5F.1     | Occupied bandwidth for shared spectrum channel access                            | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                               | D018                                     |                                                                                   |                        |
| 6.5F.2.2   | Spectrum emission mask for operation with shared spectrum channel access         | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                               | D018                                     |                                                                                   |                        |
| 6.5F.2.4   | Adjacent channel leakage ratio for operation with shared spectrum channel access | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                               | D018                                     |                                                                                   |                        |
| 6.5F.2.4.2 | Shared spectrum channel access ACLR with additional requirement for NS_29        | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                               | D018                                     |                                                                                   |                        |
| 6.5F.3.1   | General spurious emissions                                                       | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                               | D018                                     |                                                                                   | NOTE 1                 |
| 6.5F.3.3   | Additional spurious emissions for shared spectrum channel access                 | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                               | D018                                     |                                                                                   |                        |
| 6.5F.4     | Transmit intermodulation for shared spectrum channel access                      | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                                                               | D018                                     |                                                                                   | NOTE 1                 |
| 6.5G.1     | Occupied bandwidth for Tx Diversity                                              | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16                                                                                                  | D030                                     | PC1.5<br>PC2<br>PC3                                                               |                        |

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|              |                                                                               |         | Condition     | Comment                                               |                                          |                     |                        |
| 6.5G.1_1     | Occupied bandwidth for Tx Diversity for UE supporting 4Tx                     | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     |                        |
| 6.5G.2.1     | Spectrum emission mask for Tx Diversity                                       | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16 | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5G.2.1_1   | Spectrum emission mask for Tx Diversity for UE supporting 4Tx                 | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     | NOTE 1                 |
| 6.5G.2.2     | Additional spectrum emission mask for Tx Diversity                            | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16 | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5G.2.2_1   | Additional spectrum emission mask for Tx Diversity for UE supporting 4Tx      | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     | NOTE 1                 |
| 6.5G.2.3.1   | NR ACLR for Tx Diversity                                                      | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16 | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5G.2.3.2   | UTRA ACLR for Tx Diversity                                                    | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16 | D030                                     | PC3                 |                        |
| 6.5G.2.3.2_1 | UTRA ACLR for Tx Diversity for UE supporting 4Tx                              | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     | NOTE 1                 |
| 6.5G.2.3_1.1 | NR ACLR for Tx Diversity for UE supporting 4Tx                                | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     | NOTE 1                 |
| 6.5G.3.1     | General spurious emissions for Tx Diversity                                   | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16 | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5G.3.2     | Spurious emissions for UE co-existence for Tx Diversity                       | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16 | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5G.3.3     | Additional spurious emissions for Tx Diversity                                | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16 | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5G.3.3_1   | Additional Spurious emissions for Tx Diversity for UE supporting 4Tx          | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     | NOTE 1                 |
| 6.5G.3_1.1   | General spurious emissions for Tx Diversity for UE supporting 4Tx             | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     | NOTE 1                 |
| 6.5G.3_1.2   | Spurious emissions for UE co-existence for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     | NOTE 1                 |
| 6.5G.4       | Transmit intermodulation for Tx Diversity                                     | Rel-15  | C001g         | UEs supporting 5GS FR1 and supporting txDiversity-r16 | D030                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5G.4_1     | Transmit intermodulation for Tx Diversity for UE supporting 4Tx               | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity   | D030a                                    |                     |                        |

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|            |                                                                                    |         | Condition     | Comment                                                                |                                          |                     |                        |
| 6.5H.1.1   | Occupied bandwidth for intra-band UL contiguous CA for UL MIMO                     | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                        |
| 6.5H.1.2.1 | Spectrum emission mask for intra-band UL contiguous CA for UL MIMO                 | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                        |
| 6.5H.1.2.2 | Additional spectrum emission mask for intra-band UL contiguous CA for UL MIMO      | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                        |
| 6.5H.1.2.3 | NR ACLR for intra-band UL contiguous CA for UL MIMO                                | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                        |
| 6.5H.1.3.1 | General spurious emissions for intra-band UL contiguous CA for UL MIMO             | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                        |
| 6.5H.1.3.2 | Spurious emissions for UE co-existence for intra-band UL contiguous CA for UL MIMO | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                        |
| 6.5H.1.3.3 | Additional spurious emissions for intra-band UL contiguous CA for UL MIMO          | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                        |
| 6.5H.1.4   | Transmit intermodulation for intra-band UL contiguous CA for UL MIMO               | Rel-15  | C285          | UEs supporting 5GS FR1 and intra-band contiguous CA (2UL CA) and MIMO. | E042                                     | PC2<br>PC3          |                        |
| 6.5H.3.3.1 | General spurious emissions for inter-band UL CA with UL MIMO                       | Rel-17  | C328          | UEs supporting 5GS FR1 and inter-band CA (2UL CA) with UL MIMO.        | E045                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5H.3.3.2 | Spurious emissions for UE co-existence for inter-band UL CA with UL MIMO           | Rel-17  | C328          | UEs supporting 5GS FR1 and inter-band CA (2UL CA) with UL MIMO.        | E045                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5J.1     | Occupied bandwidth for ATG                                                         | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                 |
| 6.5J.2.2   | Spectrum emissions mask for ATG                                                    | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                 |
| 6.5J.3.1   | General spurious emissions for ATG                                                 | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                             | D028                                     |                     | NOTE 1                 |
| 6.5L.3.3.1 | General spurious emissions for inter-band UL CA with Tx Diversity                  | Rel-17  | C329          | UEs supporting 5GS FR1 and inter-band CA (2UL CA) with Tx Diversity.   | E046                                     | PC1.5<br>PC2<br>PC3 |                        |
| 6.5L.3.3.2 | Spurious emissions for UE co-existence for inter-band UL CA with Tx Diversity      | Rel-17  | C329          | UEs supporting 5GS FR1 and inter-band CA (2UL CA) with Tx Diversity.   | E046                                     | PC1.5<br>PC2<br>PC3 |                        |
| <b>7</b>   | <b>Receiver Characteristics</b>                                                    |         |               |                                                                        |                                          |                     |                        |

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|          |                                                                     |         | Condition     | Comment                                                       |                                          |                                          |                        |
| 7.3.2    | Reference sensitivity power level                                   | Rel-15  | C001l         | UEs supporting 5GS FR1 and not supporting RedCap              | D001                                     | 2Rx<br>4Rx<br>8Rx<br>PC1.5<br>PC2<br>PC3 |                        |
| 7.3.2_1  | Reference sensitivity power level for XR                            | Rel-18  | C416          | XR UEs supporting 5GS FR1 and supportOf2RxXR-r18 if 2Rx XR UE | D001                                     | 2Rx<br>4Rx                               |                        |
| 7.3A.1   | Reference sensitivity power level for 2DL CA without exception      | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA)                        | E016                                     | 2Rx<br>4Rx<br>PC2<br>PC3                 |                        |
| 7.3A.1_1 | Reference sensitivity power level for 2DL CA exceptions             | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA)                        | E016<br>E015a<br>E015                    | 2Rx<br>4Rx<br>PC2<br>PC3                 |                        |
| 7.3A.2   | Reference sensitivity power level for 3DL CA without exceptions     | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA)                        | E017                                     | 2Rx<br>4Rx<br>PC2<br>PC3                 |                        |
| 7.3A.2_1 | Reference sensitivity power level for 3DL CA exceptions             | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA)                        | E017<br>E015                             | 2Rx<br>4Rx<br>PC2<br>PC3                 |                        |
| 7.3A.3   | Reference sensitivity power level for 4DL CA                        | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA)                        | E018                                     | 2Rx<br>4Rx<br>PC2<br>PC3                 |                        |
| 7.3C.2   | Reference sensitivity power level for SUL                           | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                | D003                                     |                                          |                        |
| 7.3D.2   | Reference sensitivity power level for UL MIMO                       | Rel-15  | C003a         | UEs supporting 5GS FDD FR1 and UL MIMO                        | D012                                     |                                          |                        |
| 7.3D.2_1 | Reference sensitivity power level for SUL with UL MIMO              | Rel-17  | C179a         | UEs supporting 5GS FR1 and SUL and UL MIMO                    | D024                                     |                                          |                        |
| 7.3D.2_3 | Reference sensitivity power level for UL MIMO for UE supporting 4Tx | Rel-18  | C401          | UEs supporting 5GS FDD FR1 and 4-layer codebook based UL MIMO | D012a                                    |                                          |                        |
| 7.3E.2   | Reference sensitivity for V2X / non-concurrent operation            | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                        | D016                                     |                                          | NOTE 1                 |

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|        |                                                              |         | Condition     | Comment                                                                                                      |                                          |                                      |                                                                                       |
| 7.3E.3 | Reference sensitivity for V2X / Concurrent operation         | Rel-16  | C079a         | UEs supporting 5GS FR1 and NR sidelink and UEs supporting 5GS FR1 and NR V2X inter-band concurrent operation | E050                                     | Inter-band concurrent operation: PC3 |                                                                                       |
| 7.3F.2 | Reference sensitivity for shared spectrum channel access     | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                     | D018                                     |                                      |                                                                                       |
| 7.3G.1 | Reference sensitivity for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                                                          | D030a                                    |                                      |                                                                                       |
| 7.3I.2 | Reference sensitivity power level for RedCap                 | Rel-17  | C177          | RedCap UEs supporting 5GS FR1                                                                                | D001b                                    |                                      |                                                                                       |
| 7.3I.3 | Reference sensitivity power level for eRedCap                | Rel-18  | C372          | eRedCap UEs supporting 5GS FR1                                                                               | D001b                                    |                                      |                                                                                       |
| 7.3J.2 | Reference sensitivity power level for ATG                    | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                   | D028                                     |                                      | NOTE 1                                                                                |
| 7.4    | Maximum input level                                          | Rel-15  | C001          | UEs supporting 5GS FR1                                                                                       | D001                                     |                                      | Skip TC 7.4 if UE supports NSA and TS 38.521-3 TC 7.4B.2 or 7.4B.3 has been executed. |
| 7.4A.1 | Maximum input level for CA (2DL CA)                          | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA)                                                                       | E016                                     |                                      |                                                                                       |
| 7.4A.2 | Maximum input level for CA (3DL CA)                          | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA)                                                                       | E017                                     |                                      |                                                                                       |
| 7.4A.3 | Maximum input level for CA (4DL CA)                          | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA)                                                                       | E018                                     |                                      |                                                                                       |
| 7.4A.4 | Maximum input level for CA (5DL CA)                          | Rel-16  | C313          | UEs supporting 5GS FR1 and CA (5DL CA)                                                                       | E018a                                    |                                      | Skip TC 7.4A.4 if UE supports NSA and TS 38.521-3 TC 7.4B.3_1.4 has been executed.    |
| 7.4D   | Maximum input level for UL MIMO                              | Rel-15  | C003a         | UEs supporting 5GS FDD FR1 and UL MIMO                                                                       | D012                                     |                                      |                                                                                       |
| 7.4D_1 | Maximum input level for SUL with UL MIMO                     | Rel-17  | C179a         | UEs supporting 5GS FR1 and SUL and UL MIMO                                                                   | D024                                     |                                      |                                                                                       |
| 7.4D_2 | Maximum input level for UL MIMO for UE supporting 4Tx        | Rel-18  | C401          | UEs supporting 5GS FDD FR1 and 4-layer codebook based UL MIMO                                                | D012a                                    |                                      |                                                                                       |
| 7.4E.1 | Maximum input level for V2X / non-concurrent operation       | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                       | D016                                     |                                      |                                                                                       |

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|        |                                                                     |         | Condition     | Comment                                                                                                      |                                          |                                      |                                                                                                 |
| 7.4F   | Maximum input level for shared spectrum channel access              | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                     | D018                                     |                                      |                                                                                                 |
| 7.4G.1 | Maximum input level for Tx Diversity for UE supporting 4Tx          | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                                                          | D030a                                    |                                      |                                                                                                 |
| 7.4J   | Maximum input level for ATG                                         | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                   | D028                                     |                                      | NOTE 1                                                                                          |
| 7.5    | Adjacent channel selectivity                                        | Rel-15  | C001          | UEs supporting 5GS FR1                                                                                       | D001                                     |                                      | NOTE 1<br>Skip TC 7.5 if UE supports NSA and TS 38.521-3 TC 7.5B.2 or 7.5B.3 has been executed. |
| 7.5A.1 | Adjacent channel selectivity for CA (2DL CA)                        | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA)                                                                       | E016                                     |                                      |                                                                                                 |
| 7.5A.2 | Adjacent channel selectivity for CA (3DL CA)                        | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA)                                                                       | E017                                     |                                      |                                                                                                 |
| 7.5A.3 | Adjacent channel selectivity for CA (4DL CA)                        | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA)                                                                       | E018                                     |                                      |                                                                                                 |
| 7.5A.4 | Adjacent channel selectivity for CA (5DL CA)                        | Rel-16  | C313          | UEs supporting 5GS FR1 and CA (5DL CA)                                                                       | E018a                                    |                                      | Skip TC 7.5A.4 if UE supports NSA and TS 38.521-3 TC [FFS] has been executed.                   |
| 7.5D   | Adjacent channel selectivity for UL MIMO                            | Rel-15  | C003a         | UEs supporting 5GS FDD FR1 and UL MIMO                                                                       | D012                                     |                                      |                                                                                                 |
| 7.5D_1 | Adjacent channel selectivity for SUL with UL MIMO                   | Rel-17  | C179a         | UEs supporting 5GS FR1 and SUL and UL MIMO                                                                   | D024                                     |                                      |                                                                                                 |
| 7.5D_2 | Adjacent channel selectivity for UL MIMO for UE supporting 4Tx      | Rel-18  | C401          | UEs supporting 5GS FDD FR1 and 4-layer codebook based UL MIMO                                                | D012a                                    |                                      |                                                                                                 |
| 7.5E.1 | Adjacent channel selectivity for V2X / non-concurrent operation     | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                                                       | D016                                     |                                      |                                                                                                 |
| 7.5E.2 | Adjacent channel selectivity for V2X / concurrent operation         | Rel-16  | C079a         | UEs supporting 5GS FR1 and NR sidelink and UEs supporting 5GS FR1 and NR V2X inter-band concurrent operation | E050                                     | Inter-band concurrent operation: PC3 |                                                                                                 |
| 7.5F.1 | Adjacent channel selectivity for shared spectrum channel access     | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access                                     | D018                                     |                                      |                                                                                                 |
| 7.5G.1 | Adjacent channel selectivity for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                                                          | D030a                                    |                                      |                                                                                                 |

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|          |                                      |         | Condition     | Comment                                |                                          |        |                                                                                             |
| 7.5J     | Adjacent channel selectivity for ATG | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG             | D028                                     |        | NOTE 1                                                                                      |
| 7.6.2    | In-band blocking                     | Rel-15  | C001          | UEs supporting 5GS FR1                 | D001                                     |        | Skip TC 7.6.2 if UE supports NSA and TS 38.521-3 TC 7.6B.2.2 or 7.6B.2.3 has been executed. |
| 7.6.3    | Out-of-band blocking                 | Rel-15  | C001          | UEs supporting 5GS FR1                 | D001                                     |        |                                                                                             |
| 7.6.4    | Narrow band blocking                 | Rel-15  | C001          | UEs supporting 5GS FR1                 | D004                                     |        | Skip TC 7.6.4 if UE supports NSA and TS 38.521-3 TC 7.6B.4.2 or 7.6B.4.3 has been executed. |
| 7.6A.2.1 | In-band blocking for CA (2DL CA)     | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA) | E016                                     |        |                                                                                             |
| 7.6A.2.2 | In-band blocking for CA (3DL CA)     | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA) | E017                                     |        |                                                                                             |
| 7.6A.2.3 | In-band blocking for CA (4DL CA)     | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA) | E018                                     |        | Skip TC 7.6A.2.3 if UE supports NSA and TS 38.521-3 TC 7.6B.2.3_1.3 has been executed.      |
| 7.6A.2.4 | In-band blocking for CA (5DL CA)     | Rel-16  | C313          | UEs supporting 5GS FR1 and CA (5DL CA) | E018a                                    |        | NOTE 1                                                                                      |
| 7.6A.3.1 | Out-of-band blocking for CA (2DL CA) | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA) | E016                                     |        |                                                                                             |
| 7.6A.3.2 | Out-of-band blocking for CA (3DL CA) | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA) | E017                                     |        |                                                                                             |
| 7.6A.3.3 | Out-of-band blocking for CA (4DL CA) | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA) | E018                                     |        |                                                                                             |
| 7.6A.3.4 | Out-of-band blocking for CA (5DL CA) | Rel-15  | C313          | UEs supporting 5GS FR1 and CA (5DL CA) | E018a                                    |        | NOTE 1                                                                                      |
| 7.6A.4.1 | Narrow band blocking for CA (2DL CA) | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA) | E016                                     |        |                                                                                             |
| 7.6A.4.2 | Narrow band blocking for CA (3DL CA) | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA) | E017                                     |        |                                                                                             |
| 7.6A.4.3 | Narrow band blocking for CA (4DL CA) | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA) | E018                                     |        | Skip TC 7.6A.4.3 if UE supports NSA and TS 38.521-3 TC 7.6B.4.3_1.3 has been executed.      |
| 7.6A.4.4 | Narrow band blocking for CA (5DL CA) | Rel-15  | C313          | UEs supporting 5GS FR1 and CA (5DL CA) | E018a                                    |        | NOTE 1                                                                                      |

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|          |                                                         |         | Condition     | Comment                                                                  |                                          |        |                        |
| 7.6C.2   | In-band blocking for SUL                                | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                           | D003                                     |        |                        |
| 7.6C.2_1 | Inband Blocking for SUL with DL CA                      | Rel-17  | C078          | UEs supporting 5GS FR1 and SUL and intra-band contiguous CA (2DL CA)     | E031                                     |        |                        |
| 7.6C.3   | Out-of-band blocking for SUL                            | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                           | D003                                     |        |                        |
| 7.6C.3_1 | Out-of-band blocking for SUL with DL CA                 | Rel-17  | C078          | UEs supporting 5GS FR1 and SUL and intra-band contiguous CA (2DL CA)     | E031                                     |        |                        |
| 7.6D.2   | In-band blocking for UL MIMO                            | Rel-15  | C003a         | UEs supporting 5GS FDD FR1 and UL MIMO                                   | D012                                     |        |                        |
| 7.6D.2_1 | In-band blocking for SUL with UL MIMO                   | Rel-17  | C179a         | UEs supporting 5GS FR1 and SUL and UL MIMO                               | D024                                     |        |                        |
| 7.6D.2_2 | In-band blocking for UL MIMO for UE supporting 4Tx      | Rel-18  | C401          | UEs supporting 5GS FDD FR1 and 4-layer codebook based UL MIMO            | D012a                                    |        |                        |
| 7.6D.3   | Out-of-band blocking for UL MIMO                        | Rel-15  | C003a         | UEs supporting 5GS FDD FR1 and UL MIMO                                   | D012                                     |        |                        |
| 7.6D.3_1 | Out-of-band blocking for SUL with UL MIMO               | Rel-17  | C179a         | UEs supporting 5GS FR1 and SUL and UL MIMO                               | D024                                     |        |                        |
| 7.6D.3_2 | Out-of-band blocking for UL MIMO for UE supporting 4Tx  | Rel-18  | C401          | UEs supporting 5GS FDD FR1 and 4-layer codebook based UL MIMO            | D012a                                    |        |                        |
| 7.6D.4   | Narrow band blocking for UL MIMO                        | Rel-15  | C003a         | UEs supporting 5GS FDD FR1 and UL MIMO                                   | D012                                     |        |                        |
| 7.6D.4_1 | Void                                                    |         |               |                                                                          |                                          |        |                        |
| 7.6D.4_3 | Narrow band blocking for UL MIMO for UE supporting 4Tx  | Rel-18  | C401          | UEs supporting 5GS FDD FR1 and 4-layer codebook based UL MIMO            | D012a                                    |        |                        |
| 7.6E.2.1 | In-band blocking for V2X / non-concurrent operation     | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                   | D016                                     |        |                        |
| 7.6E.3.1 | Out-of-band blocking for V2X / non-concurrent operation | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                   | D016                                     |        |                        |
| 7.6F.2.1 | In-band blocking for shared spectrum channel access     | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |        |                        |
| 7.6F.3.1 | Out-of-band blocking for shared spectrum channel access | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |        |                        |

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|          |                                                             |         | Condition     | Comment                                                                  |                                          |        |                                                                                             |
| 7.6G.1   | In-band blocking for Tx Diversity for UE supporting 4Tx     | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |        |                                                                                             |
| 7.6G.2   | Out-of-band blocking for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |        |                                                                                             |
| 7.6G.3   | Narrow band blocking for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |        |                                                                                             |
| 7.6J.2   | In-band blocking for ATG                                    | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                               | D028                                     |        | NOTE 1                                                                                      |
| 7.6J.3   | Out-of-band blocking for ATG                                | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                               | D028                                     |        | NOTE 1                                                                                      |
| 7.7      | Spurious response                                           | Rel-15  | C001          | UEs supporting 5GS FR1                                                   | D001                                     |        |                                                                                             |
| 7.7A.1   | Spurious response for CA (2DL CA)                           | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA)                                   | E016                                     |        |                                                                                             |
| 7.7A.2   | Spurious response for CA (3DL CA)                           | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA)                                   | E017                                     |        |                                                                                             |
| 7.7A.3   | Spurious response for CA (4DL CA)                           | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA)                                   | E018                                     |        |                                                                                             |
| 7.7A.4   | Spurious response for CA (5DL CA)                           | Rel-15  | C313          | UEs supporting 5GS FR1 and CA (5DL CA)                                   | E018a                                    |        | NOTE 1                                                                                      |
| 7.7C     | Spurious response for SUL                                   | Rel-15  | C002          | UEs supporting 5GS FR1 and SUL                                           | D003                                     |        |                                                                                             |
| 7.7D     | Spurious response for UL MIMO                               | Rel-15  | C003a         | UEs supporting 5GS FDD FR1 and UL MIMO                                   | D012                                     |        |                                                                                             |
| 7.7D_1   | Spurious response for SUL with UL MIMO                      | Rel-17  | C179a         | UEs supporting 5GS FR1 and SUL and UL MIMO                               | D024                                     |        |                                                                                             |
| 7.7D_2   | Spurious response for UL MIMO for UE supporting 4Tx         | Rel-18  | C401          | UEs supporting 5GS FDD FR1 and 4-layer codebook based UL MIMO            | D012a                                    |        |                                                                                             |
| 7.7E.1   | Spurious response for V2X / non-concurrent operation        | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                   | D016                                     |        |                                                                                             |
| 7.7F.1   | Spurious response for shared spectrum channel access        | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |        |                                                                                             |
| 7.7G.1   | Spurious response for Tx Diversity for UE supporting 4Tx    | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |        |                                                                                             |
| 7.7J     | Spurious response for ATG                                   | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                               | D028                                     |        | NOTE 1                                                                                      |
| 7.8.2    | Wide band Intermodulation                                   | Rel-15  | C001          | UEs supporting 5GS FR1                                                   | D001                                     |        | Skip TC 7.8.2 if UE supports NSA and TS 38.521-3 TC 7.8B.2.2 or 7.8B.2.3 has been executed. |
| 7.8A.2.1 | Wide band Intermodulation for CA (2DL CA)                   | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA)                                   | E016                                     |        |                                                                                             |

| Clause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TC Title                                                               | Release | Applicability |                                                                          | Tested Bands/CA-Configurations Selection | Branch | Additional Information                                                                          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                        |         | Condition     | Comment                                                                  |                                          |        |                                                                                                 |
| 7.8A.2.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wide band Intermodulation for CA (3DL CA)                              | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA)                                   | E017                                     |        |                                                                                                 |
| 7.8A.2.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wide band Intermodulation for CA (4DL CA)                              | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA)                                   | E018                                     |        |                                                                                                 |
| 7.8A.2.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wide band Intermodulation for CA (5DL CA)                              | Rel-16  | C313          | UEs supporting 5GS FR1 and CA (5DL CA)                                   | E018a                                    |        | NOTE 1                                                                                          |
| 7.8D.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Wide band Intermodulation for UL MIMO                                  | Rel-15  | C003a         | UEs supporting 5GS FDD FR1 and UL MIMO                                   | D012                                     |        |                                                                                                 |
| 7.8D.2_1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wide band Intermodulation for SUL with UL MIMO                         | Rel-17  | C179a         | UEs supporting 5GS FR1 and SUL and UL MIMO                               | D024                                     |        |                                                                                                 |
| 7.8D.2_2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wide band Intermodulation for UL MIMO for UE supporting 4Tx            | Rel-18  | C401          | UEs supporting 5GS FDD FR1 and 4-layer codebook based UL MIMO            | D012a                                    |        |                                                                                                 |
| 7.8E.2.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wide band Intermodulation for V2X / non-concurrent operation           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                   | D016                                     |        |                                                                                                 |
| 7.8F.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Wide band Intermodulation for shared spectrum channel access           | Rel-16  | C001c         | UEs supporting 5GS FR1 and operation with shared spectrum channel access | D018                                     |        |                                                                                                 |
| 7.8G.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Intermodulation characteristics for Tx Diversity for UE supporting 4Tx | Rel-18  | C403          | UEs supporting 5GS FR1 and supporting 4Tx Diversity                      | D030a                                    |        |                                                                                                 |
| 7.8J.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Wide band intermodulation for ATG                                      | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                               | D028                                     |        | NOTE 1                                                                                          |
| 7.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Spurious emissions                                                     | Rel-15  | C001          | UEs supporting 5GS FR1                                                   | D001                                     |        | Skip TC 7.9 if UE supports NSA and TS 38.521-3 TC 7.9B.1 or 7.9B.2 or 7.9B.3 has been executed. |
| 7.9A.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Spurious emissions for CA (2DL CA)                                     | Rel-15  | C005          | UEs supporting 5GS FR1 and inter-band 2DL CA with a DL-only band         | E002                                     |        |                                                                                                 |
| 7.9J                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Spurious emissions for ATG                                             | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                               | D028                                     |        |                                                                                                 |
| <p>NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.521-1.</p> <p>NOTE 2: The test case is optional for Rel-17 RedCap UE implementing SUL.</p> <p>NOTE 3: Uplink configurations CA_nA-nB, DC_A_nB, DC_B_nA, SUL_A-nD and SUL_B-nC can be noted as same UL CA configuration, where band nC and nD are the corresponding SUL bands with same UL frequency range of band (n)A and (n)B</p> |                                                                        |         |               |                                                                          |                                          |        |                                                                                                 |

Table 4.1.1-1a: Void

Table 4.1.1-1b: Void

Table 4.1.1-1c: Void

4.1.2 FR2 standalone conformance test cases

Table 4.1.2-1: Applicability of RF SA FR2 conformance test cases, ref. TS 38.521-2 [2]

| Clause    | TC Title                                                         | Release | Applicability |                                                                                                                                                                | Tested Bands/CA-Configurations Selection | Branch                                                                | Additional Information                                                                |
|-----------|------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|           |                                                                  |         | Condition     | Comment                                                                                                                                                        |                                          |                                                                       |                                                                                       |
| <b>6</b>  | <b>Transmitter Characteristics</b>                               |         |               |                                                                                                                                                                |                                          |                                                                       |                                                                                       |
| 6.2.1.1   | UE maximum output power - EIRP and TRP                           | Rel-15  | C006j         | Release 15 UEs supporting 5GS FR2 and Release 16 and forward UEs supporting 5GS FR2 and not supporting either CSI-RS or SSB based enhanced Beam Correspondence | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6<br>PC7 | Skip TC 6.2.1.1 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4.1 has been executed.   |
| 6.2.1.2   | UE maximum output power - Spherical coverage                     | Rel-15  | C006j         | Release 15 UEs supporting 5GS FR2 and Release 16 and forward UEs supporting 5GS FR2 and not supporting either CSI-RS or SSB based enhanced Beam Correspondence | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC7        | Skip TC 6.2.1.2 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4.2 has been executed.   |
| 6.2.1.1_1 | UE maximum output power - EIRP and TRP (Rel16 and forward)       | Rel-16  | C006k         | Release 16 and forward UEs supporting 5GS FR2 and supporting either SSB-based or CSI-RS based enhanced beam correspondence                                     | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6<br>PC7 | Skip TC 6.2.1.1_1 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4.1 has been executed. |
| 6.2.1.2_1 | UE maximum output power - Spherical coverage (Rel16 and forward) | Rel-16  | C006k         | Release 16 and forward UEs supporting 5GS FR2 and supporting either SSB-based or CSI-RS based enhanced beam correspondence                                     | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC7        | Skip TC 6.2.1.2_1 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4.2 has been executed. |

| Clause     | TC Title                                               | Release          | Applicability |                                                                          | Tested Bands/CA-Configurations Selection | Branch                                                                            | Additional Information                                                                                                                                                                                                           |
|------------|--------------------------------------------------------|------------------|---------------|--------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                                                        |                  | Condition     | Comment                                                                  |                                          |                                                                                   |                                                                                                                                                                                                                                  |
| 6.2.2      | UE maximum output power reduction                      | Rel-15           | C006          | UEs supporting 5GS FR2                                                   | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6<br>PC7             | Skip TC 6.2.2 if UE supports NSA and TS 38.521-3 TC 6.2B.2.4 has been executed. Skip TC 6.2.2 for PC3 UE of Rel-15 and Rel-16 supporting <i>modifiedMPRbehaviour</i> bit 0 or PC3 UE of Rel-17, if TC 6.2.2_1 has been executed. |
| 6.2.2_1    | UE maximum output power reduction enhancements         | Rel-15<br>Rel-16 | C006o         | UEs supporting 5GS FR2 and supporting <i>modifiedMPRbehaviour</i> bit 0. | D005                                     |                                                                                   | Skip TC 6.2.2_1 if UE supports NSA and TS 38.521-3 TC 6.2B.2.4a has been executed.                                                                                                                                               |
|            |                                                        | Rel-17           | C006          | UEs supporting 5GS FR2                                                   |                                          |                                                                                   |                                                                                                                                                                                                                                  |
| 6.2.3      | UE maximum output power with additional requirements   | Rel-15           | C006          | UEs supporting 5GS FR2                                                   | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6<br>(NOTE 1)<br>PC7 | Skip TC 6.2.3 if UE supports NSA and TS 38.521-3 TC 6.2B.3.4 has been executed.                                                                                                                                                  |
| 6.2.4_1    | Configured transmitted power with Power Boost          | Rel-16           | C006w         | UEs supporting 5GS FR2 and <i>mpr-PowerBoost-FR2-r16</i>                 | D005                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)                      | Skip TC 6.2.4_1 if UE supports NSA and TS 38.521-3 TC 6.2B.4.1.4_1 has been executed.                                                                                                                                            |
| 6.2A.1.1.1 | UE maximum output power - EIRP and TRP for CA (2UL CA) | Rel-15           | C053          | UEs supporting 5GS FR2 and CA (2UL CA)                                   | E020                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC7<br>(NOTE 1)        | Skip TC 6.2A.1.1.1 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4_1.1.1 has been executed.                                                                                                                                       |

| Clause     | TC Title                                                     | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                     | Additional Information                                                                     |
|------------|--------------------------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|            |                                                              |         | Condition     | Comment                                |                                          |                                                                            |                                                                                            |
| 6.2A.1.1.2 | UE maximum output power - EIRP and TRP for CA (3UL CA)       | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC7<br>(NOTE 1) | Skip TC 6.2A.1.1.2 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4_1.2.1 has been executed. |
| 6.2A.1.1.3 | UE maximum output power - EIRP and TRP for CA (4UL CA)       | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC7<br>(NOTE 1) | Skip TC 6.2A.1.1.3 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4_1.3.1 has been executed. |
| 6.2A.1.2.1 | UE maximum output power - Spherical coverage for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC7<br>(NOTE 1) | Skip TC 6.2A.1.2.1 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4_1.1.2 has been executed. |
| 6.2A.1.2.2 | UE maximum output power - Spherical coverage for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC7<br>(NOTE 1) | Skip TC 6.2A.1.2.2 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4_1.2.2 has been executed. |

| Clause     | TC Title                                                             | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                            | Additional Information                                                                     |
|------------|----------------------------------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|            |                                                                      |         | Condition     | Comment                                |                                          |                                                                   |                                                                                            |
| 6.2A.1.2.3 | UE maximum output power - Spherical coverage for CA (4UL CA)         | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC7 (NOTE 1) | Skip TC 6.2A.1.2.3 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4_1.3.2 has been executed. |
| 6.2A.2.1   | UE maximum output power reduction for CA (2UL CA)                    | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                 | Skip TC 6.2A.2.1 if UE supports NSA and TS 38.521-3 TC 6.2B.2.4_1.1 has been executed.     |
| 6.2A.2.2   | UE maximum output power reduction for CA (3UL CA)                    | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)               | Skip TC 6.2A.2.2 if UE supports NSA and TS 38.521-3 TC 6.2B.2.4_1.2 has been executed.     |
| 6.2A.2.3   | UE maximum output power reduction for CA (4UL CA)                    | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)               | Skip TC 6.2A.2.3 if UE supports NSA and TS 38.521-3 TC 6.2B.2.4_1.3 has been executed.     |
| 6.2A.3.1   | UE maximum output power with additional requirements for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                 | Skip TC 6.2A.3.1 if UE supports NSA and TS 38.521-3 TC 6.2B.3.4_1.1 has been executed.     |

| Clause   | TC Title                                                             | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                     | Additional Information                                                                 |
|----------|----------------------------------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|          |                                                                      |         | Condition     | Comment                                |                                          |                                                                            |                                                                                        |
| 6.2A.3.2 | UE maximum output power with additional requirements for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                          | Skip TC 6.2A.3.2 if UE supports NSA and TS 38.521-3 TC 6.2B.3.4_1.2 has been executed. |
| 6.2A.3.3 | UE maximum output power with additional requirements for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                          | Skip TC 6.2A.3.3 if UE supports NSA and TS 38.521-3 TC 6.2B.3.4_1.3 has been executed. |
| 6.2D.1.1 | UE maximum output power - EIRP and TRP for UL MIMO                   | Rel-15  | C060          | UEs supporting 5GS FR2 and UL-MIMO     | D023                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)          | Skip TC 6.2D.1.1 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4D.1 has been executed.  |
| 6.2D.1.2 | UE maximum output power - Spherical coverage for UL MIMO             | Rel-15  | C060          | UEs supporting 5GS FR2 and UL-MIMO     | D023                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)          | Skip TC 6.2D.1.2 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4D.2 has been executed.  |
| 6.2D.2   | UE maximum output power reduction for UL MIMO                        | Rel-15  | C060          | UEs supporting 5GS FR2 and UL-MIMO     | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1) | Skip TC 6.2D.2 if UE supports NSA and TS 38.521-3 TC 6.2B.2.4D has been executed.      |

| Clause | TC Title                                                         | Release | Applicability |                                    | Tested Bands/CA-Configurations Selection | Branch                                                                                              | Additional Information                                                            |
|--------|------------------------------------------------------------------|---------|---------------|------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|        |                                                                  |         | Condition     | Comment                            |                                          |                                                                                                     |                                                                                   |
| 6.2D.3 | UE maximum output power with additional requirements for UL MIMO | Rel-15  | C060          | UEs supporting 5GS FR2 and UL-MIMO | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                                                 | Skip TC 6.2D.3 if UE supports NSA and TS 38.521-3 TC 6.2B.3.4D has been executed. |
| 6.2.5  | UE maximum output power – EIRP with UL Gaps                      | Rel-17  | FFS           | FFS                                | FFS                                      | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) |                                                                                   |
| 6.3.1  | Minimum output power                                             | Rel-15  | C006          | UEs supporting 5GS FR2             | D005                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6<br>PC7                            | Skip TC 6.3.1 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4 has been executed.   |
| 6.3.2  | Transmit OFF power                                               | Rel-15  | C006          | UEs supporting 5GS FR2             | D005                                     | PC1<br>PC3<br>PC5<br>PC6                                                                            |                                                                                   |

| Clause   | TC Title                             | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                                 | Additional Information                                                                 |
|----------|--------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|          |                                      |         | Condition     | Comment                                |                                          |                                                                                        |                                                                                        |
| 6.3.3.2  | General ON/OFF time mask             | Rel-15  | C006          | UEs supporting 5GS FR2                 | D005                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | Skip TC 6.3.3.2 if UE supports NSA and TS 38.521-3 TC 6.3B.3.4 has been executed.      |
| 6.3.3.4  | PRACH time mask                      | Rel-15  | C006          | UEs supporting 5GS FR2                 | D005                                     |                                                                                        | NOTE 1                                                                                 |
| 6.3.4.2  | Absolute power tolerance             | Rel-15  | C006          | UEs supporting 5GS FR2                 | D005                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1)    | Skip TC 6.3.4.2 if UE supports NSA and TS 38.521-3 TC 6.3B.8.1.4 has been executed.    |
| 6.3.4.3  | Relative power tolerance             | Rel-15  | C006          | UEs supporting 5GS FR2                 | D005                                     |                                                                                        | NOTE 1                                                                                 |
| 6.3.4.4  | Aggregate power tolerance            | Rel-15  | C006          | UEs supporting 5GS FR2                 | D005                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1)    | Skip TC 6.3.4.2 if UE supports NSA and TS 38.521-3 TC 6.3B.8.3.4 has been executed.    |
| 6.3A.1.1 | Minimum output power for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                                      | Skip TC 6.3A.1.1 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4_1.1 has been executed. |

| Clause   | TC Title                             | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                            | Additional Information                                                                 |
|----------|--------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------|
|          |                                      |         | Condition     | Comment                                |                                          |                                                   |                                                                                        |
| 6.3A.1.2 | Minimum output power for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 6.3A.1.2 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4_1.2 has been executed. |
| 6.3A.1.3 | Minimum output power for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 6.3A.1.3 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4_1.3 has been executed. |
| 6.3A.1.4 | Minimum output power for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 6.3A.1.4 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4_1.4 has been executed. |
| 6.3A.1.5 | Minimum output power for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 6.3A.1.5 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4_1.5 has been executed. |
| 6.3A.1.6 | Minimum output power for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 6.3A.1.6 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4_1.6 has been executed. |
| 6.3A.1.7 | Minimum output power for CA (8UL CA) | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 6.3A.1.7 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4_1.7 has been executed. |

| Clause     | TC Title                                 | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                                                                | Additional Information |
|------------|------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------|
|            |                                          |         | Condition     | Comment                                |                                          |                                                                                                                       |                        |
| 6.3A.2.1   | Void                                     |         |               |                                        |                                          |                                                                                                                       |                        |
| 6.3A.2.2   | Void                                     |         |               |                                        |                                          |                                                                                                                       |                        |
| 6.3A.2.3   | Void                                     |         |               |                                        |                                          |                                                                                                                       |                        |
| 6.3A.3.1.1 | General ON/OFF time mask for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>(NOTE 1)<br>PC6<br>(NOTE 1)<br>PC7<br>(NOTE 1) |                        |
| 6.3A.3.1.2 | General ON/OFF time mask for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>(NOTE 1)<br>PC6<br>(NOTE 1)<br>PC7<br>(NOTE 1) |                        |
| 6.3A.3.1.3 | General ON/OFF time mask for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>(NOTE 1)<br>PC6<br>(NOTE 1)<br>PC7<br>(NOTE 1) |                        |

| Clause     | TC Title                                 | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                              | Additional Information                                                                     |
|------------|------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|            |                                          |         | Condition     | Comment                                |                                          |                                                                     |                                                                                            |
| 6.3A.4.2.1 | Absolute power tolerance for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4<br>PC5 (NOTE 1)          | Skip TC 6.3A.4.2.1 if UE supports NSA and TS 38.521-3 TC 6.3B.8.1.4_1.1 has been executed. |
| 6.3A.4.2.2 | Absolute power tolerance for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | Skip TC 6.3A.4.2.2 if UE supports NSA and TS 38.521-3 TC 6.3B.8.1.4_1.2 has been executed. |
| 6.3A.4.2.3 | Absolute power tolerance for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | Skip TC 6.3A.4.2.3 if UE supports NSA and TS 38.521-3 TC 6.3B.8.1.4_1.3 has been executed. |
| 6.3A.4.2.4 | Absolute power tolerance for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)        |                                                                                            |

| Clause     | TC Title                                  | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                       | Additional Information                                                                     |
|------------|-------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|            |                                           |         | Condition     | Comment                                |                                          |                                                                              |                                                                                            |
| 6.3A.4.2.5 | Absolute power tolerance for CA (6UL CA)  | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                 |                                                                                            |
| 6.3A.4.2.6 | Absolute power tolerance for CA (7UL CA)  | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                 |                                                                                            |
| 6.3A.4.2.7 | Absolute power tolerance for CA (8UL CA)  | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                 |                                                                                            |
| 6.3A.4.4.1 | Aggregate power tolerance for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | Skip TC 6.3A.4.4.1 if UE supports NSA and TS 38.521-3 TC 6.3B.8.3.4_1.1 has been executed. |
| 6.3A.4.4.2 | Aggregate power tolerance for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | Skip TC 6.3A.4.4.2 if UE supports NSA and TS 38.521-3 TC 6.3B.8.3.4_1.2 has been executed. |

| Clause     | TC Title                                  | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                              | Additional Information                                                                     |
|------------|-------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|            |                                           |         | Condition     | Comment                                |                                          |                                                                     |                                                                                            |
| 6.3A.4.4.3 | Aggregate power tolerance for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | Skip TC 6.3A.4.4.3 if UE supports NSA and TS 38.521-3 TC 6.3B.8.3.4_1.3 has been executed. |
| 6.3A.4.4.4 | Aggregate power tolerance for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)        |                                                                                            |
| 6.3A.4.4.5 | Aggregate power tolerance for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)        |                                                                                            |
| 6.3A.4.4.6 | Aggregate power tolerance for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)        |                                                                                            |
| 6.3A.4.4.7 | Aggregate power tolerance for CA (8UL CA) | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)        |                                                                                            |

| Clause   | TC Title                             | Release | Applicability |                                    | Tested Bands/CA-Configurations Selection | Branch                                                                              | Additional Information                                                            |
|----------|--------------------------------------|---------|---------------|------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|          |                                      |         | Condition     | Comment                            |                                          |                                                                                     |                                                                                   |
| 6.3D.1   | Minimum output power for UL MIMO     | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO | D023                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)                   | Skip TC 6.3D.1 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4D has been executed. |
| 6.3D.2   | Transmit OFF power for UL MIMO       | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | Skip TC 6.3D.2 if UE supports NSA and TS 38.521-3 TC 6.3B.2.4D has been executed. |
| 6.3D.3.1 | General ON/OFF time mask for UL MIMO | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                        |                                                                                   |
| 6.3D.3.4 | Void                                 |         |               |                                    |                                          |                                                                                     |                                                                                   |
| 6.4.1    | Frequency error                      | Rel-15  | C006          | UEs supporting 5GS FR2             | D005                                     |                                                                                     | Skip TC 6.4.1 if UE supports NSA and TS 38.521-3 TC 6.4B.1.4 has been executed.   |

| Clause    | TC Title                                | Release | Applicability |                                                                     | Tested Bands/CA-Configurations Selection | Branch                                                                                                         | Additional Information                                                                 |
|-----------|-----------------------------------------|---------|---------------|---------------------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|           |                                         |         | Condition     | Comment                                                             |                                          |                                                                                                                |                                                                                        |
| 6.4.2.1   | Error vector magnitude                  | Rel-15  | C006          | UEs supporting 5GS FR2                                              | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6<br>PC7<br>(NOTE 1)                              | Skip TC 6.4.2.1 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.1 has been executed.    |
| 6.4.2.1_1 | Error vector magnitude with Power Boost | Rel-16  | C006w         | UEs supporting 5GS FR2 and supporting <i>mpr-PowerBoost-FR2-r16</i> | D005                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1)<br>PC5<br>(NOTE 1)<br>PC7<br>(NOTE 1) | Skip TC 6.4.2.1_1 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.1a has been executed. |
| 6.4.2.2   | Carrier leakage                         | Rel-15  | C006          | UEs supporting 5GS FR2                                              | D005                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC6<br>(NOTE 1)<br>PC7                         | Skip TC 6.4.2.2 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.2 has been executed.    |

| Clause   | TC Title                                        | Release | Applicability |                                                                                                                                                                                                  | Tested Bands/CA-Configurations Selection | Branch                                                                                       | Additional Information                                                                        |
|----------|-------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|          |                                                 |         | Condition     | Comment                                                                                                                                                                                          |                                          |                                                                                              |                                                                                               |
| 6.4.2.3  | In-band emissions                               | Rel-15  | C006          | UEs supporting 5GS FR2                                                                                                                                                                           | D005                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | Skip TC 6.4.2.3 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.3 has been executed.           |
| 6.4.2.4  | EVM equalizer spectrum flatness                 | Rel-15  | C006          | UEs supporting 5GS FR2                                                                                                                                                                           | D005                                     |                                                                                              | NOTE 1<br>Skip TC 6.4.2.4 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.4 has been executed. |
| 6.4.2.5  | EVM spectral flatness for pi/2 BPSK modulation  | Rel-15  | C006b         | UEs supporting 5GS FR2 and pi/2 BPSK modulation                                                                                                                                                  | D005                                     |                                                                                              | NOTE 1<br>Skip TC 6.4.2.5 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.5 has been executed. |
| 6.4.2.6  | Phase continuity requirements for DMRS bundling | Rel-17  | C314          | UEs supporting 5GS FR2, <i>dmrs-BundlingPUCCH-Rep-r17</i> and either <i>dmrs-BundlingPUSCH-multiSlot-r17</i> or <i>dmrs-BundlingPUSCH-RepTypeA-r17</i> or <i>dmrs-BundlingPUSCH-RepTypeB-r17</i> | D005                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) |                                                                                               |
| 6.4A.1.1 | Frequency error for CA (2UL CA)                 | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA)                                                                                                                                                           | E020                                     |                                                                                              | NOTE 1                                                                                        |
| 6.4A.1.2 | Frequency error for CA (3UL CA)                 | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA)                                                                                                                                                           | E021                                     |                                                                                              | NOTE 1                                                                                        |
| 6.4A.1.3 | Frequency error for CA (4UL CA)                 | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA)                                                                                                                                                           | E022                                     |                                                                                              | NOTE 1                                                                                        |

| Clause     | TC Title                               | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                       | Additional Information |
|------------|----------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|--------------------------------------------------------------|------------------------|
|            |                                        |         | Condition     | Comment                                |                                          |                                                              |                        |
| 6.4A.1.4   | Frequency error for CA (5UL CA)        | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     |                                                              | NOTE 1                 |
| 6.4A.1.5   | Frequency error for CA (6UL CA)        | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     |                                                              | NOTE 1                 |
| 6.4A.1.6   | Frequency error for CA (7UL CA)        | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     |                                                              | NOTE 1                 |
| 6.4A.1.7   | Frequency error for CA (8UL CA)        | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     |                                                              | NOTE 1                 |
| 6.4A.2.1.1 | Error vector magnitude for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                        |
| 6.4A.2.1.2 | Error vector magnitude for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                        |
| 6.4A.2.1.3 | Error vector magnitude for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                        |
| 6.4A.2.1.4 | Error vector magnitude for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                        |

| Clause     | TC Title                               | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                   | Additional Information |
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|            |                                        |         | Condition     | Comment                                |                                          |                                                                          |                        |
| 6.4A.2.1.5 | Error vector magnitude for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.1.6 | Error vector magnitude for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.1.7 | Error vector magnitude for CA (8UL CA) | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.2.1 | Carrier leakage for CA (2UL CA)        | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.2.2 | Carrier leakage for CA (3UL CA)        | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |

| Clause     | TC Title                        | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                   | Additional Information |
|------------|---------------------------------|---------|---------------|----------------------------------------|------------------------------------------|--------------------------------------------------------------------------|------------------------|
|            |                                 |         | Condition     | Comment                                |                                          |                                                                          |                        |
| 6.4A.2.2.3 | Carrier leakage for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.2.4 | Carrier leakage for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.2.5 | Carrier leakage for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.2.6 | Carrier leakage for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.2.7 | Carrier leakage for CA (8UL CA) | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |

| Clause     | TC Title                          | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                   | Additional Information |
|------------|-----------------------------------|---------|---------------|----------------------------------------|------------------------------------------|--------------------------------------------------------------------------|------------------------|
|            |                                   |         | Condition     | Comment                                |                                          |                                                                          |                        |
| 6.4A.2.3.1 | In-band emissions for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 CA (2UL CA)     | E020                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.3.2 | In-band emissions for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.3.3 | In-band emissions for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.3.4 | In-band emissions for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.3.5 | In-band emissions for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |

| Clause     | TC Title                                        | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                                   | Additional Information |
|------------|-------------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|--------------------------------------------------------------------------|------------------------|
|            |                                                 |         | Condition     | Comment                                |                                          |                                                                          |                        |
| 6.4A.2.3.6 | In-band emissions for CA (7UL CA)               | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.3.7 | In-band emissions for CA (8UL CA)               | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.4.1 | EVM equalizer spectrum flatness for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.4.2 | EVM equalizer spectrum flatness for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |
| 6.4A.2.4.3 | EVM equalizer spectrum flatness for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1) |                        |

| Clause     | TC Title                                        | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                       | Additional Information                                                         |
|------------|-------------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------|
|            |                                                 |         | Condition     | Comment                                |                                          |                                                              |                                                                                |
| 6.4A.2.4.4 | EVM equalizer spectrum flatness for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                |
| 6.4A.2.4.5 | EVM equalizer spectrum flatness for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                |
| 6.4A.2.4.6 | EVM equalizer spectrum flatness for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                |
| 6.4A.2.4.7 | EVM equalizer spectrum flatness for CA (8UL CA) | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                |
| 6.4D.1     | Frequency error for UL MIMO                     | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO     | D023                                     |                                                              | Skip TC 6.4D.1 if UE supports NSA and TS 38.521-3 6.4B.1.4D has been executed. |

| Clause   | TC Title                           | Release | Applicability |                                    | Tested Bands/CA-Configurations Selection | Branch                                                                       | Additional Information                                                             |
|----------|------------------------------------|---------|---------------|------------------------------------|------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|          |                                    |         | Condition     | Comment                            |                                          |                                                                              |                                                                                    |
| 6.4D.2.1 | Error vector magnitude for UL MIMO | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                 | Skip TC 6.4D.2.1 if UE supports NSA and TS 38.521-3 6.4B.2.4.1D has been executed. |
| 6.4D.2.2 | Carrier leakage for UL MIMO        | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC6 (NOTE 1) | Skip TC 6.4D.2.2 if UE supports NSA and TS 38.521-3 6.4B.2.4.2D has been executed. |
| 6.4D.2.3 | In-band emissions for UL MIMO      | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                 | Skip TC 6.4D.2.2 if UE supports NSA and TS 38.521-3 6.4B.2.4.3D has been executed. |
| 6.4D.3   | Time alignment error for UL MIMO   | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                 |                                                                                    |
| 6.5.1    | Occupied bandwidth                 | Rel-15  | C006          | UEs supporting 5GS FR2             | D005                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6                     | Skip TC 6.5.1 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4 has been executed.    |

| Clause    | TC Title                                        | Release | Applicability |                                                                     | Tested Bands/CA-Configurations Selection | Branch                                                                            | Additional Information                                                                 |
|-----------|-------------------------------------------------|---------|---------------|---------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|           |                                                 |         | Condition     | Comment                                                             |                                          |                                                                                   |                                                                                        |
| 6.5.2.1   | Spectrum Emission Mask                          | Rel-15  | C006          | UEs supporting 5GS FR2                                              | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6                    | Skip TC 6.5.2.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1 has been executed.    |
| 6.5.2.1_1 | Spectrum Emission Mask with Power Boost         | Rel-16  | C006w         | UEs supporting 5GS FR2 and supporting <i>mpr-PowerBoost-FR2-r16</i> | D005                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC6               | Skip TC 6.5.2.1_1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1a has been executed. |
| 6.5.2.3   | Adjacent channel leakage ratio                  | Rel-15  | C006          | UEs supporting 5GS FR2                                              | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6                    | Skip TC 6.5.2.3 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.3 has been executed.    |
| 6.5.3.1   | Transmitter Spurious emissions                  | Rel-15  | C006          | UEs supporting 5GS FR2                                              | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6<br>PC7<br>(NOTE 1) | Skip TC 6.5.3.1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1 has been executed.    |
| 6.5.3.1_1 | Transmitter Spurious emissions with Power Boost | Rel-16  | C006w         | UEs supporting 5GS FR2 and supporting <i>mpr-PowerBoost-FR2-r16</i> | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC6<br>(NOTE 1)               | Skip TC 6.5.3.1_1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1a has been executed. |

| Clause    | TC Title                                                | Release | Applicability |                                                                     | Tested Bands/CA-Configurations Selection | Branch                                                                            | Additional Information                                                                 |
|-----------|---------------------------------------------------------|---------|---------------|---------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|           |                                                         |         | Condition     | Comment                                                             |                                          |                                                                                   |                                                                                        |
| 6.5.3.2   | Spurious emission band UE co-existence                  | Rel-15  | C006          | UEs supporting 5GS FR2                                              | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6<br>PC7<br>(NOTE 1) | Skip TC 6.5.3.2 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2 has been executed.    |
| 6.5.3.2_1 | Spurious emission band UE co-existence with Power Boost | Rel-16  | C006w         | UEs supporting 5GS FR2 and supporting <i>mpr-PowerBoost-FR2-r16</i> | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC6<br>(NOTE 1)               | Skip TC 6.5.3.2_1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2a has been executed. |
| 6.5.3.3   | Additional spurious emissions                           | Rel-15  | C006          | UEs supporting 5GS FR2                                              | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6                    | Skip TC 6.5.3.3 if UE supports NSA and TS 38.521-3 TC 6.5B.4.4 has been executed.      |
| 6.5.3.3_1 | Additional spurious emissions with Power Boost          | Rel-16  | C006w         | UEs supporting 5GS FR2 and supporting <i>mpr-PowerBoost-FR2-r16</i> | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6                    | Skip TC 6.5.3.3_1 if UE supports NSA and TS 38.521-3 TC 6.5B.4.4a has been executed.   |
| 6.5A.1.1  | Occupied bandwidth for CA (2UL CA)                      | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA)                              | E020                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>(NOTE 1)<br>PC4<br>(NOTE 1)          | Skip TC 6.5A.1.1 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4_1.1 has been executed. |

| Clause   | TC Title                           | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                       | Additional Information                                                                 |
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|          |                                    |         | Condition     | Comment                                |                                          |                                                              |                                                                                        |
| 6.5A.1.2 | Occupied bandwidth for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | Skip TC 6.5A.1.2 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4_1.2 has been executed. |
| 6.5A.1.3 | Occupied bandwidth for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | Skip TC 6.5A.1.3 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4_1.3 has been executed. |
| 6.5A.1.4 | Occupied bandwidth for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                        |
| 6.5A.1.5 | Occupied bandwidth for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                        |
| 6.5A.1.6 | Occupied bandwidth for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                        |

| Clause     | TC Title                               | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                       | Additional Information                                                                     |
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|            |                                        |         | Condition     | Comment                                |                                          |                                                              |                                                                                            |
| 6.5A.1.7   | Occupied bandwidth for CA (8UL CA)     | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |
| 6.5A.2.1.1 | Spectrum Emission Mask for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5            | Skip TC 6.5A.2.1.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1_1.1 has been executed. |
| 6.5A.2.1.2 | Spectrum Emission Mask for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5            | Skip TC 6.5A.2.1.2 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1_1.2 has been executed. |
| 6.5A.2.1.3 | Spectrum Emission Mask for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5            | Skip TC 6.5A.2.1.3 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1_1.3 has been executed. |
| 6.5A.2.1.4 | Spectrum Emission Mask for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |

| Clause     | TC Title                                       | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                       | Additional Information                                                                     |
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|            |                                                |         | Condition     | Comment                                |                                          |                                                              |                                                                                            |
| 6.5A.2.1.5 | Spectrum Emission Mask for CA (6UL CA)         | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |
| 6.5A.2.1.6 | Spectrum Emission Mask for CA (7UL CA)         | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |
| 6.5A.2.1.7 | Spectrum Emission Mask for CA (8UL CA)         | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |
| 6.5A.2.2.1 | Adjacent channel leakage ratio for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5            | Skip TC 6.5A.2.2.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.3_1.1 has been executed. |
| 6.5A.2.2.2 | Adjacent channel leakage ratio for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5            | Skip TC 6.5A.2.2.2 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.3_1.2 has been executed. |

| Clause     | TC Title                                       | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                       | Additional Information                                                                     |
|------------|------------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|            |                                                |         | Condition     | Comment                                |                                          |                                                              |                                                                                            |
| 6.5A.2.2.3 | Adjacent channel leakage ratio for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5            | Skip TC 6.5A.2.2.3 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.3_1.3 has been executed. |
| 6.5A.2.2.4 | Adjacent channel leakage ratio for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |
| 6.5A.2.2.5 | Adjacent channel leakage ratio for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |
| 6.5A.2.2.6 | Adjacent channel leakage ratio for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |
| 6.5A.2.2.7 | Adjacent channel leakage ratio for CA (8UL CA) | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) |                                                                                            |

| Clause     | TC Title                                   | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                              | Additional Information                                                                     |
|------------|--------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------|
|            |                                            |         | Condition     | Comment                                |                                          |                                                     |                                                                                            |
| 6.5A.3.1.1 | General spurious emissions for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 and CA (2UL CA) | E020                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.1.1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1_1.1 has been executed. |
| 6.5A.3.1.2 | General spurious emissions for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.1.2 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1_1.2 has been executed. |
| 6.5A.3.1.3 | General spurious emissions for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.1.3 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1_1.3 has been executed. |
| 6.5A.3.1.4 | General spurious emissions for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.1.4 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1_1.4 has been executed. |
| 6.5A.3.1.5 | General spurious emissions for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.1.5 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1_1.5 has been executed. |
| 6.5A.3.1.6 | General spurious emissions for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.1.6 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1_1.6 has been executed. |

| Clause     | TC Title                                               | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                              | Additional Information                                                                     |
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|            |                                                        |         | Condition     | Comment                                |                                          |                                                     |                                                                                            |
| 6.5A.3.1.7 | General spurious emissions for CA (8UL CA)             | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.1.7 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1_1.7 has been executed. |
| 6.5A.3.2.1 | Spurious emission band UE co-existence for CA (2UL CA) | Rel-15  | C053          | UEs supporting 5GS FR2 CA (2UL CA)     | E020                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.2.1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2_1.1 has been executed. |
| 6.5A.3.2.2 | Spurious emission band UE co-existence for CA (3UL CA) | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.2.2 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2_1.2 has been executed. |
| 6.5A.3.2.3 | Spurious emission band UE co-existence for CA (4UL CA) | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.2.3 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2_1.3 has been executed. |
| 6.5A.3.2.4 | Spurious emission band UE co-existence for CA (5UL CA) | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.2.4 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2_1.4 has been executed. |
| 6.5A.3.2.5 | Spurious emission band UE co-existence for CA (6UL CA) | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.2.5 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2_1.5 has been executed. |

| Clause     | TC Title                                               | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                              | Additional Information                                                                     |
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|            |                                                        |         | Condition     | Comment                                |                                          |                                                     |                                                                                            |
| 6.5A.3.2.6 | Spurious emission band UE co-existence for CA (7UL CA) | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.2.6 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2_1.6 has been executed. |
| 6.5A.3.2.7 | Spurious emission band UE co-existence for CA (8UL CA) | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | Skip TC 6.5A.3.2.7 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2_1.7 has been executed. |
| 6.5A.3.3.1 | Additional spurious emissions for CA (2UL CA)          | Rel-15  | C053          | UEs supporting 5GS FR2 CA (2UL CA)     | E020                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5   | Skip TC 6.5A.3.3.1 if UE supports NSA and TS 38.521-3 TC 6.5B.4.4.1_1.1 has been executed. |
| 6.5A.3.3.2 | Additional spurious emissions for CA (3UL CA)          | Rel-15  | C054          | UEs supporting 5GS FR2 and CA (3UL CA) | E021                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5   | Skip TC 6.5A.3.3.2 if UE supports NSA and TS 38.521-3 TC 6.5B.4.4.1_1.2 has been executed. |
| 6.5A.3.3.3 | Additional spurious emissions for CA (4UL CA)          | Rel-15  | C055          | UEs supporting 5GS FR2 and CA (4UL CA) | E022                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5   | Skip TC 6.5A.3.3.3 if UE supports NSA and TS 38.521-3 TC 6.5B.4.4.3_1.3 has been executed. |
| 6.5A.3.3.4 | Additional spurious emissions for CA (5UL CA)          | Rel-15  | C056          | UEs supporting 5GS FR2 and CA (5UL CA) | E023                                     |                                                     | NOTE 1                                                                                     |
| 6.5A.3.3.5 | Additional spurious emissions for CA (6UL CA)          | Rel-15  | C057          | UEs supporting 5GS FR2 and CA (6UL CA) | E024                                     |                                                     | NOTE 1                                                                                     |
| 6.5A.3.3.6 | Additional spurious emissions for CA (7UL CA)          | Rel-15  | C058          | UEs supporting 5GS FR2 and CA (7UL CA) | E025                                     |                                                     | NOTE 1                                                                                     |

| Clause     | TC Title                                           | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                                              | Additional Information                                                                |
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|            |                                                    |         | Condition     | Comment                                |                                          |                                                                     |                                                                                       |
| 6.5A.3.3.7 | Additional spurious emissions for CA (8UL CA)      | Rel-15  | C059          | UEs supporting 5GS FR2 and CA (8UL CA) | E026                                     |                                                                     | NOTE 1                                                                                |
| 6.5D.1     | Occupied bandwidth for UL MIMO                     | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO     | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | Skip TC 6.5D.1 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4D has been executed.     |
| 6.5D.2.1   | Spectrum Emission Mask for UL MIMO                 | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO     | D023                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                          | Skip TC 6.5D.2.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1D has been executed. |
| 6.5D.2.2   | Adjacent channel leakage ratio for UL MIMO         | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO     | D023                                     | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                 | Skip TC 6.5D.2.2 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4D.3 has been executed. |
| 6.5D.3.1   | Transmitter Spurious emissions for UL MIMO         | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO     | D023                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)          | Skip TC 6.5D.3.1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1D has been executed. |
| 6.5D.3.2   | Spurious emission band UE co-existence for UL MIMO | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO     | D023                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)          | Skip TC 6.5D.3.2 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.2D has been executed. |

| Clause   | TC Title                                          | Release | Applicability |                                                                                                                                                                                                                                                                           | Tested Bands/CA-Configurations Selection | Branch                                                                | Additional Information                                                                |
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|          |                                                   |         | Condition     | Comment                                                                                                                                                                                                                                                                   |                                          |                                                                       |                                                                                       |
| 6.5D.3.3 | Additional spurious emissions for UL MIMO         | Rel-15  | C060          | UEs supporting 5GS FR2 and UL MIMO                                                                                                                                                                                                                                        | D023                                     | PC1<br>(NOTE 1)<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)          | Skip TC 6.5D.3.3 if UE supports NSA and TS 38.521-3 TC 6.5B.4.4D has been executed.   |
| 6.6.1    | Beam correspondence - EIRP                        | Rel-15  | C008          | Release 15 UEs supporting 5GS FR2 and not beam correspondence without UL beam sweeping and release 16 and forward UEs that do not support SSB-based or CSI-RS based enhanced beam correspondence and do not support enhanced beam correspondence without UL beam sweeping | D005                                     | PC3<br>PC5<br>(NOTE 1)<br>PC6<br>(NOTE 1)<br>PC7<br>(NOTE 1)          | Skip TC 6.6.1 if UE supports NSA and TS 38.521-3 TC 6.6B.4 has been executed.         |
| 6.6.2    | Enhanced Beam correspondence - EIRP               | Rel-16  | C008a         | UEs supporting 5GS FR2 and support either CSI-RS or SSB based beam correspondence and do not support beam correspondence without UL beam sweeping                                                                                                                         | D005                                     |                                                                       | Skip TC 6.6.2 if UE supports NSA and TS 38.521-3 TC 6.6B.5 has been executed.         |
| <b>7</b> | <b>Receiver Characteristics</b>                   |         |               |                                                                                                                                                                                                                                                                           |                                          |                                                                       |                                                                                       |
| 7.3.2    | Reference sensitivity power level                 | Rel-15  | C006          | UEs supporting 5GS FR2                                                                                                                                                                                                                                                    | D005                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5<br>PC6<br>PC7 | Skip TC 7.3.2 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4 has been executed.       |
| 7.3A.2.1 | Reference sensitivity power level for CA (2DL CA) | Rel-15  | C006c         | UEs supporting 5GS FR2 and CA (2DL CA)                                                                                                                                                                                                                                    | E032                                     | PC1<br>PC2<br>(NOTE 1)<br>PC3<br>PC4<br>(NOTE 1)<br>PC5               | Skip TC 7.3A.2.1 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4_1.1 has been executed |

| Clause   | TC Title                                          | Release | Applicability |                                        | Tested Bands/CA-Configurations Selection | Branch                                            | Additional Information                                                                |
|----------|---------------------------------------------------|---------|---------------|----------------------------------------|------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------|
|          |                                                   |         | Condition     | Comment                                |                                          |                                                   |                                                                                       |
| 7.3A.2.2 | Reference sensitivity power level for CA (3DL CA) | Rel-15  | C006d         | UEs supporting 5GS FR2 and CA (3DL CA) | E033                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 7.3A.2.2 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4_1.2 has been executed |
| 7.3A.2.3 | Reference sensitivity power level for CA (4DL CA) | Rel-15  | C006e         | UEs supporting 5GS FR2 and CA (4DL CA) | E034                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 7.3A.2.3 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4_1.3 has been executed |
| 7.3A.2.4 | Reference sensitivity power level for CA (5DL CA) | Rel-15  | C006f         | UEs supporting 5GS FR2 and CA (5DL CA) | E035                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 7.3A.2.4 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4_1.4 has been executed |
| 7.3A.2.5 | Reference sensitivity power level for CA (6DL CA) | Rel-15  | C006g         | UEs supporting 5GS FR2 and CA (6DL CA) | E036                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 7.3A.2.5 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4_1.5 has been executed |
| 7.3A.2.6 | Reference sensitivity power level for CA (7DL CA) | Rel-15  | C006h         | UEs supporting 5GS FR2 and CA (7DL CA) | E037                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 7.3A.2.6 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4_1.6 has been executed |
| 7.3A.2.7 | Reference sensitivity power level for CA (8DL CA) | Rel-15  | C006i         | UEs supporting 5GS FR2 and CA (8DL CA) | E038                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | Skip TC 7.3A.2.7 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4_1.7 has been executed |

| Clause   | TC Title                                                                           | Release | Applicability |                                                                                                                                                                                                                                     | Tested Bands/CA-Configurations Selection | Branch                                                                   | Additional Information                                                        |
|----------|------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------|
|          |                                                                                    |         | Condition     | Comment                                                                                                                                                                                                                             |                                          |                                                                          |                                                                               |
| 7.3A.3.1 | EIS spherical coverage for Inter-band CA (2DL CA)                                  | Rel-16  | C006c         | UEs supporting 5GS FR2 and CA (2DL CA)                                                                                                                                                                                              | E032                                     |                                                                          | NOTE 1                                                                        |
| 7.3A.3.2 | EIS spherical coverage for Inter-band CA (3DL CA)                                  | Rel-16  | C006d         | UEs supporting 5GS FR2 and CA (3DL CA)                                                                                                                                                                                              | E033                                     |                                                                          | NOTE 1                                                                        |
| 7.3A.3.3 | EIS spherical coverage for Inter-band CA (4DL CA)                                  | Rel-16  | C006e         | UEs supporting 5GS FR2 and CA (4DL CA)                                                                                                                                                                                              | E034                                     |                                                                          | NOTE 1                                                                        |
| 7.3.4    | EIS spherical coverage                                                             | Rel-15  | C006          | UEs supporting 5GS FR2                                                                                                                                                                                                              | D005                                     | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)<br>PC7 | Skip TC 7.3.4 if UE supports NSA and TS 38.521-3 TC 7.3B.4 has been executed. |
| 7.3K.1.1 | UE spherical coverage for simultaneous reception from multiple directions (2 AoAs) | Rel-18  | C415          | Release 18 and forward UEs supporting 5GS FR2, simultaneousReceptionDiffTypeD-r16 and either singleDCI-SDM-scheme-r16 OR multiDCI-MultiTRP-r16 AND either of overlapPDSCHsFullyFreqTime-r16 or overlapPDSCHsInTimePartiallyFreq-r16 | D005                                     | PC3 (NOTE 1)<br>PC6 (NOTE 1)                                             |                                                                               |
| 7.4      | Maximum input level                                                                | Rel-15  | N/A           | Not recommended due to testability issues                                                                                                                                                                                           |                                          |                                                                          | NOTE 1                                                                        |
| 7.4A.1   | Maximum input level for CA (2DL CA)                                                | Rel-15  | N/A           | Not recommended due to testability issues                                                                                                                                                                                           |                                          |                                                                          | NOTE 1                                                                        |
| 7.4A.2   | Maximum input level for CA (3DL CA)                                                | Rel-15  | N/A           | Not recommended due to testability issues                                                                                                                                                                                           |                                          |                                                                          | NOTE 1                                                                        |
| 7.4A.3   | Maximum input level for CA (4DL CA)                                                | Rel-15  | N/A           | Not recommended due to testability issues                                                                                                                                                                                           |                                          |                                                                          | NOTE 1                                                                        |
| 7.4A.4   | Maximum input level for CA (5DL CA)                                                | Rel-15  | N/A           | Not recommended due to testability issues                                                                                                                                                                                           |                                          |                                                                          | NOTE 1                                                                        |
| 7.4A.5   | Maximum input level for CA (6DL CA)                                                | Rel-15  | N/A           | Not recommended due to testability issues                                                                                                                                                                                           |                                          |                                                                          | NOTE 1                                                                        |
| 7.4A.6   | Maximum input level for CA (7DL CA)                                                | Rel-15  | N/A           | Not recommended due to testability issues                                                                                                                                                                                           |                                          |                                                                          | NOTE 1                                                                        |
| 7.4A.7   | Maximum input level for CA (8DL CA)                                                | Rel-15  | N/A           | Not recommended due to testability issues                                                                                                                                                                                           |                                          |                                                                          | NOTE 1                                                                        |

| Clause                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TC Title                     | Release | Applicability |                        | Tested Bands/CA-Configurations Selection | Branch                                      | Additional Information                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------|---------------|------------------------|------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |         | Condition     | Comment                |                                          |                                             |                                                                                 |
| 7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Adjacent channel selectivity | Rel-15  | C006          | UEs supporting 5GS FR2 | D005                                     | PC1<br>PC3<br>PC5<br>PC6<br>PC7<br>(NOTE 1) | Skip TC 7.5 if UE supports NSA and TS 38.521-3 TC 7.5B.4 has been executed.     |
| 7.6.2                                                                                                                                                                                                                                                                                                                                                                                                                                                          | In-band blocking             | Rel-15  | C006          | UEs supporting 5GS FR2 | D005                                     | PC1<br>PC3<br>PC5<br>PC6<br>PC7<br>(NOTE 1) | Skip TC 7.6.2 if UE supports NSA and TS 38.521-3 TC 7.6B.2.4 has been executed. |
| 7.9                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Spurious emissions           | Rel-15  | C006          | UEs supporting 5GS FR2 | D005                                     | PC1<br>PC3<br>PC5<br>PC6<br>PC7<br>(NOTE 1) | Skip TC 7.9 if UE supports NSA and TS 38.521-3 TC 7.9B.4 has been executed.     |
| <p>NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band/CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.521-2.</p> <p>NOTE 2: Void.</p> <p>NOTE 3: Void.</p> <p>NOTE 4: Void.</p> |                              |         |               |                        |                                          |                                             |                                                                                 |

Table 4.1.2-1a: Void

Table 4.1.2-1b: Void

Table 4.1.2-1c: Void

4.1.3 NR interworking between NR FR1 and NR FR2 and between NR and LTE conformance test cases

Table 4.1.3-1: Applicability of RF EN-DC FR1 and FR2 conformance test cases, ref. TS 38.521-3 [3]

| Clause            | TC Title                                                                                  | Release | Applicability |                                                                        | Tested Bands/CA/DC-Configurations Selection | Branch                                                          | Additional Information                                                                        |
|-------------------|-------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|                   |                                                                                           |         | Condition     | Comment                                                                |                                             |                                                                 |                                                                                               |
| <b>6</b>          | <b>Transmitter characteristics</b>                                                        |         |               |                                                                        |                                             |                                                                 |                                                                                               |
| <b>6.2B</b>       | <b>Transmitter power for DC</b>                                                           |         |               |                                                                        |                                             |                                                                 |                                                                                               |
| 6.2B.1.1          | UE Maximum Output Power for Intra-Band Contiguous EN-DC                                   | Rel-15  | C009          | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs)                   | E003                                        |                                                                 |                                                                                               |
| 6.2B.1.2          | UE Maximum Output Power for Intra-Band Non-Contiguous EN-DC                               | Rel-15  | C010          | UEs supporting Intra-Band non-contiguous EN-DC (2UL CCs)               | E004                                        |                                                                 |                                                                                               |
| 6.2B.1.3          | UE Maximum Output Power for Inter-Band EN-DC within FR1 (1 E-UTRA CC, 1 NR CC)            | Rel-15  | C011          | UEs supporting Inter-Band EN-DC within FR1 (2UL CCs)                   | E005<br>E005d                               | PC3<br>PC2                                                      |                                                                                               |
| 6.2B.1.3_1        | UE Maximum Output Power for Inter-Band EN-DC within FR1 (2 E-UTRA CCs, 1 NR CC)           | Rel-16  | C011d         | UEs supporting Inter-Band EN-DC within FR1 (2UL E-UTRA CCs, 1UL NR CC) | E005z                                       |                                                                 |                                                                                               |
| 6.2B.1.3a         | UE Maximum Output Power for Inter-Band NE-DC within FR1                                   | Rel-15  | C352          | UEs supporting Inter-Band NE-DC within FR1                             |                                             |                                                                 |                                                                                               |
| 6.2B.1.4.1        | UE Maximum Output Power for Inter-Band EN-DC including FR2 (1 NR CC) - EIRP and TRP       | Rel-15  | C012          | UEs supporting Inter-Band EN-DC including FR2 with 1 NR UL CC          | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6<br>PC7 | NOTE 5<br>Skip TC 6.2B.1.4.1 if UE supports SA and TSC 38.521-2 TC 6.2.1.1 has been executed. |
| 6.2B.1.4.2        | UE Maximum Output Power for Inter-Band EN-DC including FR2 (1 NR CC) - Spherical Coverage | Rel-15  | C012          | UEs supporting Inter-Band EN-DC including FR2 with 1 NR UL CC          | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC7        | NOTE 5<br>Skip TC 6.2B.1.4.2 if UE supports SA and TSC 38.521-2 TC 6.2.1.2 has been executed. |
| <b>6.2B.1.4_1</b> | <b>UE Maximum Output Power for Inter-Band EN-DC including FR2 (&gt;1 NR CC)</b>           |         |               |                                                                        |                                             |                                                                 |                                                                                               |

| Clause         | TC Title                                                                                   | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                              | Additional Information                                                                                 |
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|                |                                                                                            |         | Condition     | Comment                                                        |                                             |                                                                                     |                                                                                                        |
| 6.2B.1.4_1.1.1 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (2 NR CCs) - EIRP and TRP       | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC<br>6.2B.1.4_1.1.1 if UE supports SA and TS 38.521-2 TC 6.2A.1.1.1 has been executed. |
| 6.2B.1.4_1.1.2 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (2 NR CCs) - Spherical Coverage | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs | E011                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC7 (NOTE 1)                          | NOTE 5<br>Skip TC<br>6.2B.1.4_1.1.2 if UE supports SA and TS 38.521-2 TC 6.2A.1.2.1 has been executed. |
| 6.2B.1.4_1.2.1 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 NR CCs) - EIRP and TRP       | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC<br>6.2B.1.4_1.2.1 if UE supports SA and TS 38.521-2 TC 6.2A.1.1.2 has been executed. |
| 6.2B.1.4_1.2.2 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 NR CCs) - Spherical Coverage | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs | E012                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC7 (NOTE 1)                          | NOTE 5<br>Skip TC<br>6.2B.1.4_1.2.2 if UE supports SA and TS 38.521-2 TC 6.2A.1.2.2 has been executed. |

| Clause         | TC Title                                                                                    | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                              | Additional Information                                                                              |
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|                |                                                                                             |         | Condition     | Comment                                                        |                                             |                                                                                     |                                                                                                     |
| 6.2B.1.4_1.3.1 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 NR CCs) - EIRP and TRP        | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.2B.1.4_1.3.1 if UE supports SA and TS 38.521-2 TC 6.2A.1.1.3 has been executed. |
| 6.2B.1.4_1.3.2 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 NR CCs) - Spherical Coverage  | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs | E013                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC7 (NOTE 1)                          | NOTE 5<br>Skip TC 6.2B.1.4_1.3.2 if UE supports SA and TS 38.521-2 TC 6.2A.1.2.3 has been executed. |
| 6.2B.1.4D.1    | UE Maximum Output Power for Inter-Band EN-DC including FR2 for UL MIMO - EIRP and TRP       | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO      | E043                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)                   | NOTE 5<br>Skip TC 6.2B.1.4D.1 if UE supports SA and TS 38.521-2 TC 6.2D.1.1 has been executed.      |
| 6.2B.1.4D.2    | UE Maximum Output Power for Inter-Band EN-DC including FR2 for UL MIMO - Spherical Coverage | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO      | E043                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)                   | NOTE 5<br>Skip TC 6.2B.1.4D.2 if UE supports SA and TS 38.521-2 TC 6.2D.1.2 has been executed.      |

| Clause   | TC Title                                                                                 | Release | Applicability |                                                               | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                              | Additional Information                                                                                                                                                               |
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|          |                                                                                          |         | Condition     | Comment                                                       |                                             |                                                                                                     |                                                                                                                                                                                      |
| 6.2B.1.6 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (1 NR CC) - EIRP with UL Gaps | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 and Uplink Gaps | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.2B.1.6 if UE supports SA and TS 38.521-2 TC 6.2.5 has been executed.                                                                                             |
| 6.2B.2.1 | UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC                        | Rel-15  | C009          | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs)          | E003                                        | PC2<br>PC3                                                                                          | Test execution is not necessary if TS 38.521-3 TC 6.5B.2.1.3 is executed.                                                                                                            |
| 6.2B.2.2 | UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC                    | Rel-15  | C010          | UEs supporting Intra-Band non-contiguous EN-DC (2UL CCs)      | E004                                        | PC2<br>PC3                                                                                          | Test execution is not necessary if TS 38.521-3 TC 6.5B.2.2.3 has been executed.                                                                                                      |
| 6.2B.2.3 | UE Maximum Output Power reduction for Inter-Band EN-DC within FR1 (1 NR CC)              | Rel-15  | C011          | UEs supporting Inter-Band EN-DC within FR1 with 1 NR UL CC    | E005b                                       | PC3<br>PC2                                                                                          | NOTE 5<br>Test execution is not necessary if TS 38.521-3 TC 6.5B.2.3.3.1 is executed.<br>Skip TC 6.2B.2.3 if UE supports SA and TS 38.521-1 TC 6.2.2 or 6.5.2.4.1 has been executed. |

| Clause            | TC Title                                                                                    | Release | Applicability |                                                                                                 | Tested Bands/CA/DC-Configurations Selection | Branch                                                          | Additional Information                                                                                    |
|-------------------|---------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
|                   |                                                                                             |         | Condition     | Comment                                                                                         |                                             |                                                                 |                                                                                                           |
| 6.2B.2.4          | UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (1 NR CC)              | Rel-15  | C012z         | UEs supporting Inter-Band EN-DC including FR2 with 1 NR UL CC and modified MPR behaviour        | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6<br>PC7 | NOTE 5<br>Skip TC 6.2B.2.4 if UE supports SA and TS 38.521-2 TC 6.2.2 has been executed.                  |
| 6.2B.2.4a         | UE maximum output power reduction enhancements for Inter-Band EN-DC including FR2 (1 NR CC) | Rel-16  | C012q         | UEs supporting Inter-Band EN-DC including FR2 with 1 NR UL CC and modified MPR behaviour bit 0. | E010                                        |                                                                 |                                                                                                           |
| <b>6.2B.2.4_1</b> | <b>UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (&gt;1 NR CC)</b>   |         |               |                                                                                                 |                                             |                                                                 |                                                                                                           |
| 6.2B.2.4_1.1      | UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (2 NR CCs)             | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs                                  | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)             | NOTE 5<br>Skip TC 6.2B.2.4_1.1 if UE supports SA and TS 38.521-2 TC 6.2A.2.1 has been executed.           |
| 6.2B.2.4_1.2      | UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (3 NR CCs)             | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs                                  | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)             | NOTE 1<br>NOTE 5<br>Skip TC 6.2B.2.4_1.1 if UE supports SA and TS 38.521-2 TC 6.2A.2.2 has been executed. |
| 6.2B.2.4_1.3      | UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 (4 NR CCs)             | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs                                  | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)             | NOTE 1<br>NOTE 5<br>Skip TC 6.2B.2.4_1.1 if UE supports SA and TS 38.521-2 TC 6.2A.2.3 has been executed. |

| Clause    | TC Title                                                                                   | Release | Applicability |                                                                                       | Tested Bands/CA/DC-Configurations Selection | Branch                                                                              | Additional Information                                                                                                                                                                                                                                                   |
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|           |                                                                                            |         | Condition     | Comment                                                                               |                                             |                                                                                     |                                                                                                                                                                                                                                                                          |
| 6.2B.2.4D | UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 for UL MIMO (1 NR CC) | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO                             | E043                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.2B.2.4D if UE supports SA and TS 38.521-2 TC 6.2D.2 has been executed.                                                                                                                                                                               |
| 6.2B.3.1  | UE Additional Maximum Output Power reduction for Intra-band contiguous EN-DC               | Rel-15  | C009z         | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs) and modified MPR behaviour       | E003                                        | PC2<br>PC3                                                                          |                                                                                                                                                                                                                                                                          |
| 6.2B.3.2  | UE Additional Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC           | Rel-15  | FFS           | FFS                                                                                   | FFS                                         | PC2 (NOTE 1)<br>PC3 (NOTE 1)                                                        |                                                                                                                                                                                                                                                                          |
| 6.2B.3.3  | UE Additional Maximum Output power reduction for inter-band EN-DC within FR1 (1 NR CC)     | Rel-15  | C011z         | UEs supporting Inter-Band EN-DC within FR1 with 1 NR UL CC and modified MPR behaviour | E005b                                       | PC3<br>PC2                                                                          | NOTE 5<br>Test execution is not necessary if TS 38.521-3 TCs 6.5B.2.3.2, 6.5B.2.3.3.2 and 6.5B.4.3 are executed.<br>Skip TC 6.2B.3.3 if UE supports SA and TS 38.521-1 TC 6.2.3 has been executed, or TS 38.521-1 TCs 6.5.2.3, 6.5.2.4.2 and 6.5.3.3 have been executed. |

| Clause            | TC Title                                                                                              | Release | Applicability |                                                                                          | Tested Bands/CA/DC-Configurations Selection | Branch                                                                            | Additional Information                                                                          |
|-------------------|-------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
|                   |                                                                                                       |         | Condition     | Comment                                                                                  |                                             |                                                                                   |                                                                                                 |
| 6.2B.3.4          | UE Additional Maximum Output Power reduction for Inter-Band EN-DC including FR2 (1 NR CC)             | Rel-15  | C012z         | UEs supporting Inter-Band EN-DC including FR2 with 1 NR UL CC and modified MPR behaviour | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.2B.3.4 if UE supports SA and TS 38.521-2 TC 6.2.3 has been executed.        |
| <b>6.2B.3.4_1</b> | <b>UE Additional Maximum Output power reduction for inter-band EN-DC including FR2 (&gt; 1 NR CC)</b> |         |               |                                                                                          |                                             |                                                                                   |                                                                                                 |
| 6.2B.3.4_1.1      | UE Additional Maximum Output power reduction for inter-band EN-DC including FR2 (2 NR CCs)            | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs                           | E011                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                                 | NOTE 5<br>Skip TC 6.2B.3.4_1.1 if UE supports SA and TS 38.521-2 TC 6.2A.3.1 has been executed. |
| 6.2B.3.4_1.2      | UE Additional Maximum Output power reduction for inter-band EN-DC including FR2 (3 NR CCs)            | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs                           | E012                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                                 | NOTE 5<br>Skip TC 6.2B.3.4_1.2 if UE supports SA and TS 38.521-2 TC 6.2A.3.2 has been executed. |
| 6.2B.3.4_1.3      | UE Additional Maximum Output power reduction for inter-band EN-DC including FR2 (4 NR CCs)            | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs                           | E013                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                                 | NOTE 5<br>Skip TC 6.2B.3.4_1.3 if UE supports SA and TS 38.521-2 TC 6.2A.3.3 has been executed. |
| 6.2B.3.4D         | UE Additional Maximum Output Power reduction for Inter-Band EN-DC including FR2 (1 NR CC) for UL MIMO | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO                                | E043                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                               | NOTE 5<br>Skip TC 6.2B.3.4D if UE supports SA and TS 38.521-2 TC 6.2D.3 has been executed.      |

| Clause       | TC Title                                                                                  | Release | Applicability |                                                                                                 | Tested Bands/CA/DC-Configurations Selection | Branch                                              | Additional Information                                                                          |
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|              |                                                                                           |         | Condition     | Comment                                                                                         |                                             |                                                     |                                                                                                 |
| 6.2B.4.1.1   | Configured Output Power Level for Intra-Band Contiguous EN-DC                             | Rel-15  | C009          | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs)                                            | E003                                        |                                                     |                                                                                                 |
| 6.2B.4.1.2   | Configured Output Power for Intra-Band Non-Contiguous EN-DC                               | Rel-15  | C010          | UEs supporting Intra-Band Non-Contiguous EN-DC (2UL CCs)                                        | E004                                        |                                                     |                                                                                                 |
| 6.2B.4.1.3   | Configured Output Power for Inter-Band EN-DC within FR1 (1 E-UTRA CC, 1 NR CC)            | Rel-15  | C011          | UEs supporting Inter-Band EN-DC within FR1 (2UL CCs)                                            | E005                                        |                                                     |                                                                                                 |
| 6.2B.4.1.3_1 | Configured Output Power for Inter-Band EN-DC within FR1 (2 E-UTRA CCs, 1 NR CC)           | Rel-16  | C011d         | UEs supporting Inter-Band EN-DC within FR1 (2UL E-UTRA CCs, 1UL NR CC)                          | E005z                                       |                                                     |                                                                                                 |
| 6.2B.4.1.4   | Configured Output Power for Inter-Band EN-DC including FR2 (1 NR CC)                      | Rel-15  | C012          | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC                                   | E010                                        |                                                     |                                                                                                 |
| 6.2B.4.1.4_1 | Configured Output Power with Power Boost for Inter-Band EN-DC including FR2 (1 NR CC)     | Rel-16  | C012w         | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC and <i>mpr-PowerBoost-FR2-r16</i> | E010                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC 6.2B.4.1.4_1 if UE supports NSA and TS 38.521-2 TC 6.2.4_1 has been executed. |
| <b>6.2H</b>  | <b>Transmitter power for DC with UL MIMO</b>                                              |         |               |                                                                                                 |                                             |                                                     |                                                                                                 |
| 6.2H.1.3     | UE maximum output power for inter-band EN-DC with UL MIMO within FR1                      | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                                          | E045                                        | PC3<br>PC2                                          |                                                                                                 |
| 6.2H.2.3     | UE maximum output power reduction for inter-band EN-DC with UL MIMO within FR1            | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                                          | E045                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.2H.2.3 if UE supports SA and TS 38.521-1 TC 6.2D.2 has been executed.       |
| 6.2H.3.3     | UE additional maximum output power reduction for inter-band EN-DC with UL MIMO within FR1 | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                                          | E045                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.2H.3.3 if UE supports SA and TS 38.521-1 TC 6.2D.3 has been executed.       |
| 6.2H.4.3     | Configured output power level for inter-band EN-DC with UL MIMO within FR1                | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                                          | E045                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.2H.4.3 if UE supports SA and TS 38.521-1 TC 6.2D.4 has been executed.       |
| <b>6.2L</b>  | <b>Transmitter power for DC with Tx Diversity</b>                                         |         |               |                                                                                                 |                                             |                                                     |                                                                                                 |

| Clause      | TC Title                                                                                       | Release | Applicability |                                                             | Tested Bands/CA/DC-Configurations Selection | Branch     | Additional Information                                                                    |
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|             |                                                                                                |         | Condition     | Comment                                                     |                                             |            |                                                                                           |
| 6.2L.1.3    | UE maximum output power for inter-band EN-DC with Tx Diversity within FR1                      | Rel-17  | C331          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 |                                                                                           |
| 6.2L.2.3    | UE maximum output power reduction for inter-band EN-DC with Tx Diversity within FR1            | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.2L.2.3 if UE supports SA and TS 38.521-1 TC 6.2G.2 has been executed. |
| 6.2L.3.3    | UE additional maximum output power reduction for inter-band EN-DC with Tx Diversity within FR1 | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.2L.3.3 if UE supports SA and TS 38.521-1 TC 6.2G.3 has been executed. |
| 6.2L.4.3    | Configured output power level for inter-band EN-DC with Tx Diversity within FR1                | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.2L.4.3 if UE supports SA and TS 38.521-1 TC 6.2G.4 has been executed. |
| <b>6.3B</b> | <b>Output power dynamics for DC</b>                                                            |         |               |                                                             |                                             |            |                                                                                           |
| 6.3B.1.1    | Minimum Output power for intra-band contiguous EN-DC                                           | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)        | E003                                        |            |                                                                                           |
| 6.3B.1.2    | Minimum output power for intra-band non-contiguous EN-DC                                       | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)    | E004                                        |            | NOTE 5<br>Skip TC 6.3B.1.2 if UE supports SA and TS 38.521-1 TC 6.3.1 has been executed.  |
| 6.3B.1.3    | Minimum output power for inter-band EN-DC within FR1 (1 NR CC)                                 | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC  | E005b                                       |            | NOTE 5<br>Skip TC 6.3B.1.3 if UE supports SA and TS 38.521-1 TC 6.3.1 has been executed.  |

| Clause            | TC Title                                                                     | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                     | Additional Information                                                                          |
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|                   |                                                                              |         | Condition     | Comment                                                        |                                             |                                                                                            |                                                                                                 |
| 6.3B.1.4          | Minimum Output Power for EN-DC Interband including FR2 (1 NR CC)             | Rel-15  | C012          | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC  | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.1.4 if UE supports SA and TS 38.521-2 TC 6.3.1 has been executed.        |
| <b>6.3B.1.4_1</b> | <b>Minimum output power for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                |                                             |                                                                                            |                                                                                                 |
| 6.3B.1.4_1.1      | Minimum output power for inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                                        | NOTE 5<br>Skip TC 6.3B.1.4_1.1 if UE supports SA and TS 38.521-2 TC 6.3A.1.1 has been executed. |
| 6.3B.1.4_1.2      | Minimum output power for inter-band EN-DC including FR2 (3 NR CCs)           | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                                        | NOTE 5<br>Skip TC 6.3B.1.4_1.2 if UE supports SA and TS 38.521-2 TC 6.3A.1.2 has been executed. |
| 6.3B.1.4_1.3      | Minimum output power for inter-band EN-DC including FR2 (4 NR CCs)           | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                                        | NOTE 5<br>Skip TC 6.3B.1.4_1.3 if UE supports SA and TS 38.521-2 TC 6.3A.1.3 has been executed. |

| Clause     | TC Title                                                            | Release | Applicability |                                                               | Tested Bands/CA/DC-Configurations Selection | Branch                                                                              | Additional Information                                                                     |
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|            |                                                                     |         | Condition     | Comment                                                       |                                             |                                                                                     |                                                                                            |
| 6.3B.1.4D  | Minimum output power for inter-band EN-DC including FR2 for UL MIMO | Rel-15  | C012p         | UEs supporting inter-band EN-DC including FR2 and UL MIMO     | E043                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)                   | NOTE 5<br>Skip TC 6.3B.1.4D if UE supports SA and TS 38.521-2 TC 6.3D.1 has been executed. |
| 6.3B.2.4   | Transmit OFF Power for inter-band EN-DC including FR2 (1 NR CC)     | Rel-15  | C012          | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC | E010                                        |                                                                                     | NOTE 5<br>Skip TC 6.3B.2.4 if UE supports SA and TS 38.521-2 TC 6.3.2 has been executed.   |
| 6.3B.2.4_1 | Void                                                                |         |               |                                                               |                                             |                                                                                     |                                                                                            |
| 6.3B.2.4D  | Transmit OFF Power for inter-band EN-DC including FR2 for UL-MIMO   | Rel-15  | C012p         | UEs supporting inter-band EN-DC including FR2 and UL MIMO     | E043                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.2.4D if UE supports SA and TS 38.521-2 TC 6.3D.2 has been executed. |
| 6.3B.3.1   | Transmit ON/OFF time mask for intra-band contiguous EN-DC           | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)          | E003                                        |                                                                                     | NOTE 5<br>Skip TC 6.3B.3.1 if UE supports SA and TS 38.521-1 TC 6.3.3.2 has been executed. |
| 6.3B.3.2   | Transmit ON/OFF time mask for intra-band non-contiguous EN-DC       | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)      | E004                                        |                                                                                     | NOTE 5<br>Skip TC 6.3B.3.2 if UE supports SA and TS 38.521-1 TC 6.3.3.2 has been executed. |

| Clause            | TC Title                                                                          | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                              | Additional Information                                                                            |
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|                   |                                                                                   |         | Condition     | Comment                                                        |                                             |                                                                                                     |                                                                                                   |
| 6.3B.3.3          | Transmit ON/OFF time mask for inter-band EN-DC within FR1 (1 NR CC)               | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC     | E005b                                       |                                                                                                     | NOTE 5<br>Skip TC 6.3B.3.3 if UE supports SA and TS 38.521-1 TC 6.3.3.2 has been executed.        |
| 6.3B.3.4          | Transmit ON/OFF time mask for inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012          | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC  | E010                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1)                 | NOTE 5<br>Skip TC 6.3B.3.4 if UE supports SA and TS 38.521-2 TC 6.3.3.2 has been executed.        |
| <b>6.3B.3.4_1</b> | <b>Transmit ON/OFF time mask for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                |                                             |                                                                                                     |                                                                                                   |
| 6.3B.3.4_1.1      | Transmit ON/OFF time mask for inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | C012b         | UEs supporting inter-band EN-DC including FR2 with 2 NR UL CCs | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.3.4_1.1 if UE supports SA and TS 38.521-2 TC 6.3A.3.1.1 has been executed. |

| Clause       | TC Title                                                                                         | Release | Applicability |                                                                                        | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                              | Additional Information                                                                            |
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|              |                                                                                                  |         | Condition     | Comment                                                                                |                                             |                                                                                                     |                                                                                                   |
| 6.3B.3.4_1.2 | Transmit ON/OFF time mask for inter-band EN-DC including FR2 (3 NR CCs)                          | Rel-15  | C012c         | UEs supporting inter-band EN-DC including FR2 with 3 NR UL CCs                         | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.3.4_1.2 if UE supports SA and TS 38.521-2 TC 6.3A.3.1.2 has been executed. |
| 6.3B.3.4_1.3 | Transmit ON/OFF time mask for inter-band EN-DC including FR2 (4 NR CCs)                          | Rel-15  | C012d         | UEs supporting inter-band EN-DC including FR2 with 4 NR UL CCs                         | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.3.4_1.2 if UE supports SA and TS 38.521-2 TC 6.3A.3.1.3 has been executed. |
| 6.3B.3_1.1   | E-UTRA and NR switching time mask for switching between two uplink carriers for inter-band EN-DC | Rel-16  | C126a         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC and dynamic UL Tx switching | E031b                                       |                                                                                                     | NOTE 1                                                                                            |
| 6.3B.4.1     | PRACH time mask for intra-band contiguous EN-DC                                                  | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)                                   | E003                                        |                                                                                                     | NOTE 5<br>Skip TC 6.3B.4.1 if UE supports SA and TS 38.521-1 TC 6.3.3.4 has been executed.        |
| 6.3B.4.2     | PRACH Time Mask for intra-band non-contiguous EN-DC                                              | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)                               | E004                                        |                                                                                                     | NOTE 5<br>Skip TC 6.3B.4.2 if UE supports SA and TS 38.521-1 TC 6.3.3.4 has been executed.        |

| Clause     | TC Title                                                              | Release | Applicability |                                                               | Tested Bands/CA/DC-Configurations Selection | Branch                                                                              | Additional Information                                                                               |
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|            |                                                                       |         | Condition     | Comment                                                       |                                             |                                                                                     |                                                                                                      |
| 6.3B.4.3   | PRACH Time Mask for inter-band EN-DC within FR1 (1 NR CC)             | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC    | E005b                                       |                                                                                     | NOTE 5<br>Skip TC 6.3B.4.3 if UE supports SA and TS 38.521-1 TC 6.3.3.4 has been executed.           |
| 6.3B.4.4   | PRACH Time Mask for inter-band EN-DC including FR2 (1 NR CC)          | Rel-15  | C012          | UEs supporting Inter-Band EN-DC including FR2 with 1 NR UL CC | E010                                        |                                                                                     | NOTE 1<br>NOTE 5<br>Skip TC 6.3B.4.4 if UE supports SA and TS 38.521-2 TC 6.3.3.4 has been executed. |
| 6.3B.8.1.1 | Absolute Power Tolerance for intra-band contiguous EN-DC              | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2 UL CCs)         | E003                                        |                                                                                     | NOTE 5<br>Skip TC 6.3B.8.1.1 if UE supports SA and TS 38.521-1 TC 6.3.4.2 has been executed.         |
| 6.3B.8.1.2 | Absolute Power Tolerance for intra-band non-contiguous EN-DC          | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2 UL CCs)     | E004                                        |                                                                                     | NOTE 5<br>Skip TC 6.3B.8.1.2 if UE supports SA and TS 38.521-1 TC 6.3.4.2 has been executed.         |
| 6.3B.8.1.3 | Absolute Power Tolerance for inter-band EN-DC within FR1 (1 NR CC)    | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC    | E005b                                       |                                                                                     | NOTE 5<br>Skip TC 6.3B.8.1.3 if UE supports SA and TS 38.521-1 TC 6.3.4.2 has been executed.         |
| 6.3B.8.1.4 | Absolute Power Tolerance for inter-band EN-DC including FR2 (1 NR CC) | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC    | E005b                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.8.1.4 if UE supports SA and TS 38.521-2 TC 6.3.4.2 has been executed.         |

| Clause              | TC Title                                                                         | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                              | Additional Information                                                                              |
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|                     |                                                                                  |         | Condition     | Comment                                                        |                                             |                                                                     |                                                                                                     |
| <b>6.3B.8.1.4_1</b> | <b>Absolute power tolerance for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                |                                             |                                                                     |                                                                                                     |
| 6.3B.8.1.4_1.1      | Absolute power tolerance for inter-band EN-DC including FR2 (2 NR CC)            | Rel-16  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.8.1.4_1.1 if UE supports SA and TS 38.521-2 TC 6.3A.4.2.1 has been executed. |
| 6.3B.8.1.4_1.2      | Absolute power tolerance for inter-band EN-DC including FR2 (3 NR CC)            | Rel-16  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.8.1.4_1.2 if UE supports SA and TS 38.521-2 TC 6.3A.4.2.2 has been executed. |
| 6.3B.8.1.4_1.3      | Absolute power tolerance for inter-band EN-DC including FR2 (4 NR CC)            | Rel-16  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.8.1.4_1.3 if UE supports SA and TS 38.521-2 TC 6.3A.4.2.3 has been executed. |
| 6.3B.8.2.1          | Relative Power Tolerance for intra-band contiguous EN-DC                         | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2 UL CCs)          | E003                                        |                                                                     | NOTE 5<br>Skip TC 6.3B.8.2.1 if UE supports SA and TS 38.521-1 TC 6.3.4.3 has been executed.        |
| 6.3B.8.2.2          | Relative Power Tolerance for intra-band non-contiguous EN-DC                     | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2 UL CCs)      | E004                                        |                                                                     | NOTE 5<br>Skip TC 6.3B.8.2.2 if UE supports SA and TS 38.521-1 TC 6.3.4.3 has been executed.        |

| Clause              | TC Title                                                                          | Release | Applicability |                                                            | Tested Bands/CA/DC-Configurations Selection | Branch                                                                              | Additional Information                                                                       |
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|                     |                                                                                   |         | Condition     | Comment                                                    |                                             |                                                                                     |                                                                                              |
| 6.3B.8.2.3          | Relative Power Tolerance for inter-band EN-DC within FR1 (1 NR CC)                | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                                                     | NOTE 5<br>Skip TC 6.3B.8.2.3 if UE supports SA and TS 38.521-1 TC 6.3.4.3 has been executed. |
| 6.3B.8.2.4          | Relative Power Tolerance for inter-band EN-DC including FR2 (1 NR CC)             | Rel-15  | FFS           | FFS                                                        | FFS                                         |                                                                                     | NOTE 1                                                                                       |
| 6.3B.8.3.1          | Aggregate Power Tolerance for intra-band contiguous EN-DC                         | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2 UL CCs)      | E003                                        |                                                                                     | NOTE 5<br>Skip TC 6.3B.8.3.1 if UE supports SA and TS 38.521-1 TC 6.3.4.4 has been executed. |
| 6.3B.8.3.2          | Aggregate Power Tolerance for intra-band non-contiguous EN-DC                     | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2 UL CCs)  | E004                                        |                                                                                     | NOTE 5<br>Skip TC 6.3B.8.3.2 if UE supports SA and TS 38.521-1 TC 6.3.4.4 has been executed. |
| 6.3B.8.3.3          | Aggregate Power Tolerance for inter-band EN-DC within FR1 (1 NR CC)               | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                                                     | NOTE 5<br>Skip TC 6.3B.8.3.3 if UE supports SA and TS 38.521-1 TC 6.3.4.4 has been executed. |
| 6.3B.8.3.4          | Aggregate Power Tolerance for inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.8.3.4 if UE supports SA and TS 38.521-2 TC 6.3.4.4 has been executed. |
| <b>6.3B.8.3.4_1</b> | <b>Aggregate power tolerance for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                            |                                             |                                                                                     |                                                                                              |

| Clause                                                | TC Title                                                               | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                              | Additional Information                                                                              |
|-------------------------------------------------------|------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|                                                       |                                                                        |         | Condition     | Comment                                                        |                                             |                                                                     |                                                                                                     |
| 6.3B.8.3.4_1.1                                        | Aggregate power tolerance for inter-band EN-DC including FR2 (2 NR CC) | Rel-16  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.8.3.4_1.1 if UE supports SA and TS 38.521-2 TC 6.3A.4.4.1 has been executed. |
| 6.3B.8.3.4_1.2                                        | Aggregate power tolerance for inter-band EN-DC including FR2 (3 NR CC) | Rel-16  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.8.3.4_1.2 if UE supports SA and TS 38.521-2 TC 6.3A.4.4.2 has been executed. |
| 6.3B.8.3.4_1.3                                        | Aggregate power tolerance for inter-band EN-DC including FR2 (4 NR CC) | Rel-16  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | NOTE 5<br>Skip TC 6.3B.8.3.4_1.3 if UE supports SA and TS 38.521-2 TC 6.3A.4.4.3 has been executed. |
| <b>6.3H Output power dynamics for DC with UL MIMO</b> |                                                                        |         |               |                                                                |                                             |                                                                     |                                                                                                     |
| 6.3H.3.1                                              | Minimum output power for inter-band EN-DC with UL MIMO within FR1      | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO         | E045                                        | PC3<br>PC2                                                          | NOTE 5<br>Skip TC 6.3H.3.1 if UE supports SA and TS 38.521-1 TC 6.3D.1 has been executed.           |
| 6.3H.3.3                                              | Transmit ON/OFF time mask for inter-band EN-DC with UL MIMO within FR1 | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO         | E045                                        | PC3<br>PC2                                                          | NOTE 5<br>Skip TC 6.3H.3.3 if UE supports SA and TS 38.521-1 TC 6.3D.3 has been executed.           |

| Clause                                                     | TC Title                                                                   | Release | Applicability |                                                             | Tested Bands/CA/DC-Configurations Selection | Branch     | Additional Information                                                                           |
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|                                                            |                                                                            |         | Condition     | Comment                                                     |                                             |            |                                                                                                  |
| 6.3H.3.4.1                                                 | Absolute power tolerance for inter-band EN-DC with UL MIMO within FR1      | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3H.3.4.1 if UE supports SA and TS 38.521-1<br>TC 6.3D.4.1 has been executed. |
| 6.3H.3.4.2                                                 | Relative power tolerance for inter-band EN-DC with UL MIMO within FR1      | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3H.3.4.2 if UE supports SA and TS 38.521-1<br>TC 6.3D.4.2 has been executed. |
| 6.3H.3.4.3                                                 | Aggregate power tolerance for inter-band EN-DC with UL MIMO within FR1     | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3H.3.4.3 if UE supports SA and TS 38.521-1<br>TC 6.3D.4.3 has been executed. |
| <b>6.3L Output power dynamics for DC with Tx Diversity</b> |                                                                            |         |               |                                                             |                                             |            |                                                                                                  |
| 6.3L.3.1                                                   | Minimum output power for inter-band EN-DC with Tx Diversity within FR1     | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3L.3.1 if UE supports SA and TS 38.521-1<br>TC 6.3G.1 has been executed.     |
| 6.3L.3.3.1                                                 | General ON/OFF time mask for inter-band EN-DC with Tx Diversity within FR1 | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3L.3.3.1 if UE supports SA and TS 38.521-1<br>TC 6.3G.3.1 has been executed. |
| 6.3L.3.3.2                                                 | PRACH time mask for inter-band EN-DC with Tx Diversity within FR1          | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3L.3.3.2 if UE supports SA and TS 38.521-1<br>TC 6.3G.3.2 has been executed. |

| Clause      | TC Title                                                                    | Release | Applicability |                                                             | Tested Bands/CA/DC-Configurations Selection | Branch     | Additional Information                                                                           |
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|             |                                                                             |         | Condition     | Comment                                                     |                                             |            |                                                                                                  |
| 6.3L.3.3.3  | SRS time mask for inter-band EN-DC with Tx Diversity within FR1             | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3L.3.3.3 if UE supports SA and TS 38.521-1<br>TC 6.3G.3.3 has been executed. |
| 6.3L.3.4.1  | Absolute power tolerance for inter-band EN-DC with Tx Diversity within FR1  | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3L.3.4.1 if UE supports SA and TS 38.521-1<br>TC 6.3G.4.1 has been executed. |
| 6.3L.3.4.2  | Relative power tolerance for inter-band EN-DC with Tx Diversity within FR1  | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3L.3.4.2 if UE supports SA and TS 38.521-1<br>TC 6.3G.4.2 has been executed. |
| 6.3L.3.4.3  | Aggregate power tolerance for inter-band EN-DC with Tx Diversity within FR1 | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.3L.3.4.3 if UE supports SA and TS 38.521-1<br>TC 6.3G.4.3 has been executed. |
| <b>6.4B</b> | <b>Transmit Signal Quality for DC</b>                                       |         |               |                                                             |                                             |            |                                                                                                  |
| 6.4B.1.1    | Frequency Error for intra-band contiguous EN-DC                             | Rel-15  | C009          | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs)        | E003                                        |            | NOTE 5<br>Skip TC 6.4B.1.1 if UE supports SA and TS 38.521-1<br>TC 6.4.1 has been executed.      |
| 6.4B.1.2    | Frequency Error for intra-band non-contiguous EN-DC                         | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)    | E004                                        |            | NOTE 5<br>Skip TC 6.4B.1.2 if UE supports SA and TS 38.521-1<br>TC 6.4.1 has been executed.      |

| Clause            | TC Title                                                                | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch | Additional Information                                                                          |
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|                   |                                                                         |         | Condition     | Comment                                                        |                                             |        |                                                                                                 |
| 6.4B.1.3          | Frequency error for Inter-band EN-DC within FR1 (1 NR CC)               | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC     | E005b                                       |        | NOTE 5<br>Skip TC 6.4B.1.3 if UE supports SA and TS 38.521-1 TC 6.4.1 has been executed.        |
| 6.4B.1.4          | Frequency Error for inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012          | UEs supporting Inter-Band EN-DC including FR2 with 1 NR UL CC  | E010                                        |        | NOTE 5<br>Skip TC 6.4B.1.4 if UE supports SA and TS 38.521-2 TC 6.4.1 has been executed.        |
| <b>6.4B.1.4_1</b> | <b>Frequency Error for Inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                |                                             |        |                                                                                                 |
| 6.4B.1.4_1.1      | Frequency Error for inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs | E011                                        |        | NOTE 5<br>Skip TC 6.4B.1.4_1.1 if UE supports SA and TS 38.521-2 TC 6.4A.1.1 has been executed. |
| 6.4B.1.4_1.2      | Frequency Error for inter-band EN-DC including FR2 (3 NR CCs)           | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs | E012                                        |        | NOTE 5<br>Skip TC 6.4B.1.4_1.2 if UE supports SA and TS 38.521-2 TC 6.4A.1.2 has been executed. |
| 6.4B.1.4_1.3      | Frequency Error for inter-band EN-DC including FR2 (4 NR CCs)           | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs | E013                                        |        | NOTE 5<br>Skip TC 6.4B.1.4_1.3 if UE supports SA and TS 38.521-2 TC 6.4A.1.3 has been executed. |

| Clause       | TC Title                                                       | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                       | Additional Information                                                                          |
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|              |                                                                |         | Condition     | Comment                                                        |                                             |                                                              |                                                                                                 |
| 6.4B.1.4_1.4 | Frequency Error for inter-band EN-DC including FR2 (5 NR CCs)  | Rel-15  | C012i         | UEs supporting Inter-Band EN-DC including FR2 with 5 NR UL CCs | E014a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC 6.4B.1.4_1.4 if UE supports SA and TS 38.521-2 TC 6.4A.1.4 has been executed. |
| 6.4B.1.4_1.5 | Frequency Error for inter-band EN-DC including FR2 (6 NR CCs)  | Rel-15  | C012j         | UEs supporting Inter-Band EN-DC including FR2 with 6 NR UL CCs | E039                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC 6.4B.1.4_1.5 if UE supports SA and TS 38.521-2 TC 6.4A.1.5 has been executed. |
| 6.4B.1.4_1.6 | Frequency Error for inter-band EN-DC including FR2 (7 NR CCs)  | Rel-15  | C012k         | UEs supporting Inter-Band EN-DC including FR2 with 7 NR UL CCs | E040                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC 6.4B.1.4_1.6 if UE supports SA and TS 38.521-2 TC 6.4A.1.6 has been executed. |
| 6.4B.1.4_1.7 | Frequency Error for inter-band EN-DC including FR2 (8 NR CCs)  | Rel-15  | C012l         | UEs supporting Inter-Band EN-DC including FR2 with 8 NR UL CCs | E041                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC 6.4B.1.4_1.7 if UE supports SA and TS 38.521-2 TC 6.4A.1.7 has been executed. |
| 6.4B.1.4D    | Frequency error for inter-band EN-DC including FR2 for UL-MIMO | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO      | E043                                        |                                                              | NOTE 5<br>Skip TC 6.4B.1.4D if UE supports SA and TS 38.521-2 TC 6.4D.1 has been executed.      |

| Clause     | TC Title                                                   | Release | Applicability |                                                          | Tested Bands/CA/DC-Configurations Selection | Branch | Additional Information                                                                       |
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|            |                                                            |         | Condition     | Comment                                                  |                                             |        |                                                                                              |
| 6.4B.2.1.1 | Error Vector Magnitude for intra-band contiguous EN-DC     | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)     | E003                                        |        | NOTE 5<br>Skip TC 6.4B.2.1.1 if UE supports SA and TS 38.521-1 TC 6.4.2.1 has been executed. |
| 6.4B.2.1.2 | Carrier Leakage for intra-band contiguous EN-DC            | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)     | E003                                        |        | NOTE 5<br>Skip TC 6.4B.2.1.2 if UE supports SA and TS 38.521-1 TC 6.4.2.2 has been executed. |
| 6.4B.2.1.3 | In-band Emissions for intra-band contiguous EN-DC          | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)     | E003                                        |        |                                                                                              |
| 6.4B.2.1.4 | EVM Equalizer Flatness for intra-band contiguous EN-DC     | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)     | E003                                        |        | NOTE 5<br>Skip TC 6.4B.2.1.4 if UE supports SA and TS 38.521-1 TC 6.4.2.4 has been executed. |
| 6.4B.2.2.1 | Error Vector Magnitude for intra-band non-contiguous EN-DC | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004                                        |        | NOTE 5<br>Skip TC 6.4B.2.2.1 if UE supports SA and TS 38.521-1 TC 6.4.2.1 has been executed. |
| 6.4B.2.2.2 | Carrier Leakage for intra-band non-contiguous EN-DC        | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004                                        |        | NOTE 5<br>Skip TC 6.4B.2.2.2 if UE supports SA and TS 38.521-1 TC 6.4.2.2 has been executed. |
| 6.4B.2.2.3 | In-band Emissions for intra-band non-contiguous EN-DC      | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004                                        |        | NOTE 5<br>Skip TC 6.4B.2.2.3 if UE supports SA and TS 38.521-1 TC 6.4.2.3 has been executed. |

| Clause     | TC Title                                                            | Release | Applicability |                                                            | Tested Bands/CA/DC-Configurations Selection | Branch                                            | Additional Information                                                                       |
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|            |                                                                     |         | Condition     | Comment                                                    |                                             |                                                   |                                                                                              |
| 6.4B.2.2.4 | EVM Equalizer Flatness for intra-band non-contiguous EN-DC          | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)   | E004                                        |                                                   | NOTE 5<br>Skip TC 6.4B.2.2.4 if UE supports SA and TS 38.521-1 TC 6.4.2.4 has been executed. |
| 6.4B.2.3.1 | Error Vector Magnitude for inter-band EN-DC within FR1 (1 NR CC)    | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                   | NOTE 5<br>Skip TC 6.4B.2.3.1 if UE supports SA and TS 38.521-1 TC 6.4.2.1 has been executed. |
| 6.4B.2.3.2 | Carrier Leakage for inter-band EN-DC within FR1 (1 NR CC)           | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                   | NOTE 5<br>Skip TC 6.4B.2.3.2 if UE supports SA and TS 38.521-1 TC 6.4.2.2 has been executed. |
| 6.4B.2.3.3 | In-band Emissions for inter-band EN-DC within FR1 (1 NR CC)         | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                   | NOTE 5<br>Skip TC 6.4B.2.3.3 if UE supports SA and TS 38.521-1 TC 6.4.2.3 has been executed. |
| 6.4B.2.3.4 | EVM Equalizer Flatness for inter-band EN-DC within FR1 (1 NR CC)    | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                   | NOTE 5<br>Skip TC 6.4B.2.3.4 if UE supports SA and TS 38.521-1 TC 6.4.2.4 has been executed. |
| 6.4B.2.4.1 | Error Vector Magnitude for inter-band EN-DC including FR2 (1 NR CC) | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC    | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | NOTE 5<br>Skip TC 6.4B.2.4.1 if UE supports SA and TS 38.521-2 TC 6.4.2.1 has been executed. |

| Clause              | TC Title                                                                             | Release | Applicability |                                                                                                 | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                       | Additional Information                                                                                 |
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|                     |                                                                                      |         | Condition     | Comment                                                                                         |                                             |                                                                                              |                                                                                                        |
| 6.4B.2.4.1a         | Error Vector Magnitude with Power Boost for inter-band EN-DC including FR2 (1 NR CC) | Rel-16  | C012w         | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC and <i>mpr-PowerBoost-FR2-r16</i> | E010                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC<br>6.4B.2.4.1a if UE supports SA and TS 38.521-2 TC 6.4.2.1_1 has been executed.     |
| <b>6.4B.2.4.1_1</b> | <b>Error Vector Magnitude for inter-band EN-DC including FR2 (&gt;1 NR CC)</b>       |         |               |                                                                                                 |                                             |                                                                                              |                                                                                                        |
| 6.4B.2.4.1_1.1      | Error Vector Magnitude for inter-band EN-DC including FR2 (2 NR CCs)                 | Rel-15  | FFS           | FFS                                                                                             | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                                 | NOTE 5<br>Skip TC<br>6.4B.2.4.1_1.1 if UE supports SA and TS 38.521-2 TC 6.4A.2.1.1 has been executed. |
| 6.4B.2.4.1_1.2      | Error Vector Magnitude for inter-band EN-DC including FR2 (3 NR CCs)                 | Rel-15  | FFS           | FFS                                                                                             | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                                 | NOTE 5<br>Skip TC<br>6.4B.2.4.1_1.2 if UE supports SA and TS 38.521-2 TC 6.4A.2.1.2 has been executed. |
| 6.4B.2.4.1_1.3      | Error Vector Magnitude for inter-band EN-DC including FR2 (4 NR CCs)                 | Rel-15  | FFS           | FFS                                                                                             | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                                 | NOTE 5<br>Skip TC<br>6.4B.2.4.1_1.3 if UE supports SA and TS 38.521-2 TC 6.4A.2.1.3 has been executed. |

| Clause              | TC Title                                                                | Release | Applicability |                                                         | Tested Bands/CA/DC-Configurations Selection | Branch                                                                              | Additional Information                                                                              |
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|                     |                                                                         |         | Condition     | Comment                                                 |                                             |                                                                                     |                                                                                                     |
| 6.4B.2.4.1D         | Error Vector Magnitude for inter-band EN-DC including FR2 for UL MIMO   | FFS     | FFS           | FFS                                                     | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                        | NOTE 5<br>Skip TC 6.4B.2.4.1D if UE supports SA and TS 38.521-2 TC 6.4D.2.1 has been executed.      |
| 6.4B.2.4.2          | Carrier Leakage for inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC | E010                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.4B.2.4.2 if UE supports SA and TS 38.521-2 TC 6.4.2.2 has been executed.        |
| <b>6.4B.2.4.2_1</b> | <b>Carrier Leakage for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                         |                                             |                                                                                     |                                                                                                     |
| 6.4B.2.4.2_1.1      | Carrier Leakage for inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | FFS           | FFS                                                     | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                        | NOTE 5<br>Skip TC 6.4B.2.4.2_1.1 if UE supports SA and TS 38.521-2 TC 6.4A.2.2.1 has been executed. |
| 6.4B.2.4.2_1.2      | Carrier Leakage for inter-band EN-DC including FR2 (3 NR CCs)           | Rel-15  | FFS           | FFS                                                     | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                        | NOTE 5<br>Skip TC 6.4B.2.4.2_1.2 if UE supports SA and TS 38.521-2 TC 6.4A.2.2.2 has been executed. |

| Clause              | TC Title                                                                  | Release | Applicability |                                                         | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                       | Additional Information                                                                              |
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|                     |                                                                           |         | Condition     | Comment                                                 |                                             |                                                                                              |                                                                                                     |
| 6.4B.2.4.2_1.3      | Carrier Leakage for inter-band EN-DC including FR2 (4 NR CCs)             | Rel-15  | FFS           | FFS                                                     | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                                 | NOTE 5<br>Skip TC 6.4B.2.4.2_1.3 if UE supports SA and TS 38.521-2 TC 6.4A.2.2.3 has been executed. |
| 6.4B.2.4.2D         | Carrier Leakage for inter-band EN-DC including FR2 for UL MIMO            | FFS     | FFS           | FFS                                                     | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)                 | NOTE 5<br>Skip TC 6.4B.2.4.2D if UE supports SA and TS 38.521-2 TC 6.4D.2.2 has been executed.      |
| 6.4B.2.4.3          | In-band Emissions for inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC | E010                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.4B.2.4.3 if UE supports SA and TS 38.521-2 TC 6.4.2.3 has been executed.        |
| 6.4B.2.4.3D         | In-band Emissions for inter-band EN-DC including FR2 for UL MIMO          | FFS     | FFS           | FFS                                                     | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                                 | NOTE 5<br>Skip TC 6.4B.2.4.3D if UE supports SA and TS 38.521-2 TC 6.4D.2.3 has been executed.      |
| <b>6.4B.2.4.3_1</b> | <b>In-band Emissions for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                         |                                             |                                                                                              |                                                                                                     |
| 6.4B.2.4.3_1.1      | In-band Emissions for inter-band EN-DC including FR2 (2 NR CCs)           | FFS     | FFS           | FFS                                                     | FFS                                         |                                                                                              | NOTE 1                                                                                              |

| Clause                                                  | TC Title                                                                                    | Release | Applicability |                                                                                  | Tested Bands/CA/DC-Configurations Selection | Branch     | Additional Information                                                                                    |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------|---------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------|
|                                                         |                                                                                             |         | Condition     | Comment                                                                          |                                             |            |                                                                                                           |
| 6.4B.2.4.3_1.2                                          | In-band Emissions for inter-band EN-DC including FR2 (3 NR CCs)                             | FFS     | FFS           | FFS                                                                              | FFS                                         |            | NOTE 1                                                                                                    |
| 6.4B.2.4.3_1.3                                          | In-band Emissions for inter-band EN-DC including FR2 (4 NR CCs)                             | FFS     | FFS           | FFS                                                                              | FFS                                         |            | NOTE 1                                                                                                    |
| 6.4B.2.4.4                                              | EVM Equalizer Flatness for inter-band EN-DC including FR2 (1 NR CC)                         | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC                          | E010                                        |            | NOTE 1<br>NOTE 5<br>Skip TC 6.4B.2.4.4 if UE supports SA and TS 38.521-2<br>TC 6.4.2.4 has been executed. |
| 6.4B.2.4.4D                                             | EVM Equalizer Flatness for inter-band EN-DC including FR2 for UL MIMO                       | FFS     | FFS           | FFS                                                                              | FFS                                         |            | NOTE 1                                                                                                    |
| 6.4B.2.4.5                                              | EVM spectral flatness for pi/2 BPSK modulation for inter-band EN-DC including FR2 (1 NR CC) | Rel-15  | C012f         | UEs supporting Inter-band including FR2 with 1 NR UL CC and pi/2 BPSK modulation | E010                                        |            | NOTE 1<br>NOTE 5<br>Skip TC 6.4B.2.4.5 if UE supports SA and TS 38.521-2<br>TC 6.4.2.5 has been executed. |
| <b>6.4H Transmit signal quality for DC with UL MIMO</b> |                                                                                             |         |               |                                                                                  |                                             |            |                                                                                                           |
| 6.4H.1.3                                                | Frequency error for inter-band EN-DC with UL MIMO within FR1                                | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                           | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.4H.1.3 if UE supports SA and TS 38.521-1<br>TC 6.4D.1 has been executed.              |
| 6.4H.2.3.1                                              | Error Vector Magnitude for inter-band EN-DC with UL MIMO within FR1                         | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                           | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.4H.2.3.1 if UE supports SA and TS 38.521-1<br>TC 6.4D.2.1 has been executed.          |
| 6.4H.2.3.2                                              | Carrier leakage for inter-band EN-DC with UL MIMO within FR1                                | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                           | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.4H.2.3.2 if UE supports SA and TS 38.521-1<br>TC 6.4D.2.2 has been executed.          |

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|                                                              |                                                                          |         | Condition     | Comment                                                     |                                             |            |                                                                                                       |
| 6.4H.2.3.3                                                   | In-band emissions for inter-band EN-DC with UL MIMO within FR1           | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.4H.2.3.3 if UE supports SA and TS 38.521-1<br>TC 6.4D.2.3 has been executed.      |
| <b>6.4L Transmit signal quality for DC with Tx Diversity</b> |                                                                          |         |               |                                                             |                                             |            |                                                                                                       |
| 6.4L.1.3                                                     | Frequency error for inter-band EN-DC with Tx Diversity within FR1        | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.4L.1.3 if UE supports SA and TS 38.521-1<br>TC 6.4G.1 has been executed.          |
| 6.4L.2.3.1                                                   | Error Vector Magnitude for inter-band EN-DC with Tx Diversity within FR1 | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.4L.2.3.1 if UE supports SA and TS 38.521-1<br>TC 6.4G.2.1 has been executed.      |
| 6.4L.2.3.2                                                   | Carrier leakage for inter-band EN-DC with Tx Diversity within FR1        | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.4L.2.3.2 if UE supports SA and TS 38.521-1<br>TC 6.4G.2.2 has been executed.      |
| 6.4L.2.3.3                                                   | In-band emissions for inter-band EN-DC with Tx Diversity within FR1      | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.4L.2.3.3 if UE supports SA and TS 38.521-1<br>TC 6.4G.2.3 has been executed.      |
| <b>6.5B</b>                                                  | <b>Output RF spectrum emissions for DC</b>                               |         |               |                                                             |                                             |            |                                                                                                       |
| 6.5B.1.1                                                     | Occupied bandwidth for Intra-Band Contiguous EN-DC                       | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)        | E003                                        |            | NOTE 1                                                                                                |
| 6.5B.1.2                                                     | Occupied bandwidth for Intra-Band Non-Contiguous EN-DC                   | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)    | E004                                        |            | NOTE 1<br>NOTE 5<br>Skip TC 6.5B.1.2 if UE supports SA and TS 38.521-1<br>TC 6.5.1 has been executed. |

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|                   |                                                                            |         | Condition     | Comment                                                        |                                             |                                                                                              |                                                                                                 |
| 6.5B.1.3          | Occupied bandwidth for Inter-Band EN-DC within FR1 (1 NR CC)               | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC     | E005b                                       |                                                                                              | NOTE 5<br>Skip TC 6.5B.1.3 if UE supports SA and TS 38.521-1 TC 6.5.1 has been executed.        |
| 6.5B.1.4          | Occupied bandwidth for Inter-Band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC        | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                                            | NOTE 5<br>Skip TC 6.5B.1.4 if UE supports SA and TS 38.521-2 TC 6.5.1 has been executed.        |
| <b>6.5B.1.4_1</b> | <b>Occupied bandwidth for Inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                |                                             |                                                                                              |                                                                                                 |
| 6.5B.1.4_1.1      | Occupied bandwidth for inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.1.4_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.1.1 has been executed. |
| 6.5B.1.4_1.2      | Occupied bandwidth for inter-band EN-DC including FR2 (3 NR CCs)           | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.1.4_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.1.2 has been executed. |

| Clause       | TC Title                                                         | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                       | Additional Information                                                                          |
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|              |                                                                  |         | Condition     | Comment                                                        |                                             |                                                                                              |                                                                                                 |
| 6.5B.1.4_1.3 | Occupied bandwidth for inter-band EN-DC including FR2 (4 NR CCs) | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.1.4_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.1.3 has been executed. |
| 6.5B.1.4_1.4 | Occupied bandwidth for inter-band EN-DC including FR2 (5 NR CCs) | Rel-15  | C012i         | UEs supporting Inter-Band EN-DC including FR2 with 5 NR UL CCs | E014a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.1.4_1.4 if UE supports SA and TS 38.521-2 TC 6.5A.1.4 has been executed. |
| 6.5B.1.4_1.5 | Occupied bandwidth for inter-band EN-DC including FR2 (6 NR CCs) | Rel-15  | C012j         | UEs supporting Inter-Band EN-DC including FR2 with 6 NR UL CCs | E039                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.1.4_1.5 if UE supports SA and TS 38.521-2 TC 6.5A.1.5 has been executed. |

| Clause       | TC Title                                                           | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                       | Additional Information                                                                          |
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|              |                                                                    |         | Condition     | Comment                                                        |                                             |                                                                                              |                                                                                                 |
| 6.5B.1.4_1.6 | Occupied bandwidth for inter-band EN-DC including FR2 (7 NR CCs)   | Rel-15  | C012k         | UEs supporting Inter-Band EN-DC including FR2 with 7 NR UL CCs | E040                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.1.4_1.6 if UE supports SA and TS 38.521-2 TC 6.5A.1.6 has been executed. |
| 6.5B.1.4_1.7 | Occupied bandwidth for inter-band EN-DC including FR2 (8 NR CCs)   | Rel-15  | C012l         | UEs supporting Inter-Band EN-DC including FR2 with 8 NR UL CCs | E041                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.1.4_1.7 if UE supports SA and TS 38.521-2 TC 6.5A.1.7 has been executed. |
| 6.5B.1.4D    | Occupied bandwidth for inter-band EN-DC including FR2 for UL MIMO  | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO      | E043                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)                          | NOTE 5<br>Skip TC 6.5B.1.4D if UE supports SA and TS 38.521-2 TC 6.5D.1 has been executed.      |
| 6.5B.2.1.1   | Spectrum emissions mask for intra-band contiguous EN-DC            | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)           | E003                                        |                                                                                              |                                                                                                 |
| 6.5B.2.1.2   | Additional spectrum emissions mask for intra-band contiguous EN-DC | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)           | E003                                        |                                                                                              |                                                                                                 |
| 6.5B.2.1.3   | Adjacent channel leakage ratio for intra-band contiguous EN-DC     | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)           | E003                                        |                                                                                              |                                                                                                 |
| 6.5B.2.2.1   | Spectrum emissions mask for intra-band non-contiguous EN-DC        | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)       | E004                                        |                                                                                              |                                                                                                 |

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|              |                                                                                 |         | Condition     | Comment                                                    |                                             |                                                   |                                                                                                  |
| 6.5B.2.2.2   | Additional Spectrum emissions mask for intra-band non-contiguous EN-DC          | FFS     | FFS           | FFS                                                        | FFS                                         | PC2 (NOTE 1)<br>PC3 (NOTE 1)                      |                                                                                                  |
| 6.5B.2.2.3   | Adjacent channel leakage ratio for intra-band non-contiguous EN-DC              | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)   | E004                                        |                                                   |                                                                                                  |
| 6.5B.2.3.1   | Spectrum emissions mask for Inter-band EN-DC within FR1 (1 NR CC)               | Rel-15  | C011b         | UEs supporting Inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                   | NOTE 5<br>Skip TC 6.5B.2.3.1 if UE supports SA and TS 38.521-1 TC 6.5.2.2 has been executed.     |
| 6.5B.2.3.2   | Additional Spectrum emissions mask for Inter-band EN-DC within FR1 (1 NR CC)    | Rel-15  | C011b         | UEs supporting Inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                   | NOTE 5<br>Skip TC 6.5B.2.3.2 if UE supports SA and TS 38.521-1 TC 6.5.2.3 has been executed.     |
| 6.5B.2.3.3.1 | NR - Adjacent channel leakage ratio for inter-band EN-DC within FR1 (1 NR CC)   | Rel-15  | C011b         | UEs supporting Inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                   | NOTE 5<br>Skip TC 6.5B.2.3.3.1 if UE supports SA and TS 38.521-1 TC 6.5.2.4.1 has been executed. |
| 6.5B.2.3.3.2 | UTRA - Adjacent channel leakage ratio for inter-band EN-DC within FR1 (1 NR CC) | Rel-15  | C011b         | UEs supporting Inter-band EN-DC within FR1 with 1 NR UL CC | E005b                                       |                                                   | NOTE 5<br>Skip TC 6.5B.2.3.3.2 if UE supports SA and TS 38.521-1 TC 6.5.2.4.2 has been executed. |
| 6.5B.2.4.1   | Spectrum emissions mask for Inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC    | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 | NOTE 5<br>Skip TC 6.5B.2.4.1 if UE supports SA and TS 38.521-2 TC 6.5.2.1 has been executed.     |

| Clause              | TC Title                                                                              | Release | Applicability |                                                                                                 | Tested Bands/CA/DC-Configurations Selection | Branch                                                              | Additional Information                                                                              |
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|                     |                                                                                       |         | Condition     | Comment                                                                                         |                                             |                                                                     |                                                                                                     |
| 6.5B.2.4.1a         | Spectrum emissions mask with Power Boost for Inter-band EN-DC including FR2 (1 NR CC) | Rel-16  | C012w         | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC and <i>mpr-PowerBoost-FR2-r16</i> | E010                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.2.4.1a if UE supports SA and TS 38.521-2 TC 6.5.2.1_1 has been executed.     |
| <b>6.5B.2.4.1_1</b> | <b>Spectrum emissions mask for Inter-band EN-DC including FR2 (&gt;1 NR CC)</b>       |         |               |                                                                                                 |                                             |                                                                     |                                                                                                     |
| 6.5B.2.4.1_1.1      | Spectrum emissions mask for Inter-band EN-DC including FR2 (2 NR CCs)                 | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs                                  | E011                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                   | NOTE 5<br>Skip TC 6.5B.2.4.1_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.1 has been executed. |
| 6.5B.2.4.1_1.2      | Spectrum emissions mask for Inter-band EN-DC including FR2 (3 NR CCs)                 | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs                                  | E012                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                   | NOTE 5<br>Skip TC 6.5B.2.4.1_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.2 has been executed. |
| 6.5B.2.4.1_1.3      | Spectrum emissions mask for Inter-band EN-DC including FR2 (4 NR CCs)                 | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs                                  | E013                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                   | NOTE 5<br>Skip TC 6.5B.2.4.1_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.3 has been executed. |

| Clause         | TC Title                                                              | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                       | Additional Information                                                                              |
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|                |                                                                       |         | Condition     | Comment                                                        |                                             |                                                                                              |                                                                                                     |
| 6.5B.2.4.1_1.4 | Spectrum emissions mask for Inter-band EN-DC including FR2 (5 NR CCs) | Rel-15  | C012i         | UEs supporting Inter-Band EN-DC including FR2 with 5 NR UL CCs | E014a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.2.4.1_1.4 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.4 has been executed. |
| 6.5B.2.4.1_1.5 | Spectrum emissions mask for Inter-band EN-DC including FR2 (6 NR CCs) | Rel-15  | C012j         | UEs supporting Inter-Band EN-DC including FR2 with 6 NR UL CCs | E039                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.2.4.1_1.5 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.5 has been executed. |
| 6.5B.2.4.1_1.6 | Spectrum emissions mask for Inter-band EN-DC including FR2 (7 NR CCs) | Rel-15  | C012k         | UEs supporting Inter-Band EN-DC including FR2 with 7 NR UL CCs | E040                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.2.4.1_1.6 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.6 has been executed. |

| Clause              | TC Title                                                                               | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                                       | Additional Information                                                                              |
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|                     |                                                                                        |         | Condition     | Comment                                                        |                                             |                                                                                              |                                                                                                     |
| 6.5B.2.4.1_1.7      | Spectrum emissions mask for Inter-band EN-DC including FR2 (8 NR CCs)                  | Rel-15  | C012l         | UEs supporting Inter-Band EN-DC including FR2 with 8 NR UL CCs | E041                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.2.4.1_1.7 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.7 has been executed. |
| 6.5B.2.4.1D         | Spectrum emissions mask for inter-band EN-DC including FR2 for UL MIMO                 | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO      | E043                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                                                   | NOTE 5<br>Skip TC 6.5B.2.4.1D if UE supports SA and TS 38.521-2 TC 6.5D.2.1 has been executed.      |
| 6.5B.2.4.3          | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC        | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                                            | NOTE 5<br>Skip TC 6.5B.2.4.3 if UE supports SA and TS 38.521-2 TC 6.5.2.3 has been executed.        |
| <b>6.5B.2.4.3_1</b> | <b>Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                |                                             |                                                                                              |                                                                                                     |
| 6.5B.2.4.3_1.1      | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs | E011                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                                            | NOTE 5<br>Skip TC 6.5B.2.4.3_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.2.2.1 has been executed. |
| 6.5B.2.4.3_1.2      | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (3 NR CCs)           | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs | E012                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5                                            | NOTE 5<br>Skip TC 6.5B.2.4.3_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.2.2.2 has been executed. |

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|                |                                                                              |         | Condition     | Comment                                                        |                                             |                                                              |                                                                                                           |
| 6.5B.2.4.3_1.3 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (4 NR CCs) | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs | E013                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5            | NOTE 5<br>Skip TC<br>6.5B.2.4.3_1.3 if UE supports SA and TS 38.521-2<br>TC 6.5A.2.2.3 has been executed. |
| 6.5B.2.4.3_1.4 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (5 NR CCs) | Rel-15  | C012i         | UEs supporting Inter-Band EN-DC including FR2 with 5 NR UL CCs | E014a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC<br>6.5B.2.4.3_1.4 if UE supports SA and TS 38.521-2<br>TC 6.5A.2.2.4 has been executed. |
| 6.5B.2.4.3_1.5 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (6 NR CCs) | Rel-15  | C012j         | UEs supporting Inter-Band EN-DC including FR2 with 6 NR UL CCs | E039                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC<br>6.5B.2.4.3_1.5 if UE supports SA and TS 38.521-2<br>TC 6.5A.2.2.5 has been executed. |
| 6.5B.2.4.3_1.6 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (7 NR CCs) | Rel-15  | C012k         | UEs supporting Inter-Band EN-DC including FR2 with 7 NR UL CCs | E040                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC<br>6.5B.2.4.3_1.6 if UE supports SA and TS 38.521-2<br>TC 6.5A.2.2.6 has been executed. |
| 6.5B.2.4.3_1.7 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (8 NR CCs) | Rel-15  | C012l         | UEs supporting Inter-Band EN-DC including FR2 with 8 NR UL CCs | E041                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC<br>6.5B.2.4.3_1.7 if UE supports SA and TS 38.521-2<br>TC 6.5A.2.2.7 has been           |

| Clause      | TC Title                                                                      | Release | Applicability |                                                           | Tested Bands/CA/DC-Configurations Selection | Branch                                              | Additional Information                                                                                                                                                        |
|-------------|-------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------|---------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                                                                               |         | Condition     | Comment                                                   |                                             |                                                     |                                                                                                                                                                               |
| 6.5B.2.4D.3 | Adjacent channel leakage ratio for inter-band EN-DC including FR2 for UL MIMO | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO | E043                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.2.4D.3 if UE supports SA and TS 38.521-2 TC 6.5D.2.2 has been executed.                                                                                |
| 6.5B.3.1.1  | General spurious emissions for intra-band contiguous EN-DC                    | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)      | E003                                        |                                                     | NOTE 5<br>Skip TC 6.5B.3.1.1 if UE supports SA and TS 38.521-1 TC 6.5.3.1 has been executed.                                                                                  |
| 6.5B.3.1.2  | Spurious emission band UE co-existence for intra-band contiguous EN-DC        | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)      | E003                                        |                                                     |                                                                                                                                                                               |
| 6.5B.3.2.1  | General spurious emissions for intra-band non-contiguous EN-DC                | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)  | E004                                        |                                                     | NOTE 5<br>Skip TC 6.5B.3.2.1 if UE supports SA and TS 38.521-1 TC 6.5.3.1 has been executed.                                                                                  |
| 6.5B.3.2.2  | Spurious emission band UE co-existence for intra-band non-contiguous EN-DC    | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)  | E004                                        |                                                     |                                                                                                                                                                               |
| 6.5B.3.3.1  | General spurious emissions for Inter-band EN-DC within FR1                    | Rel-15  | C011          | UEs supporting Inter-band EN-DC within FR1 (2UL CCs)      | E005                                        |                                                     | Test only one EN-DC combination per 5G NR band.<br>Skip LTE anchor agnostic approach testing in TC 6.5B.3.3.1 if UE supports SA and TS 38.521-1 TC 6.5.3.1 has been executed. |

| Clause     | TC Title                                                          | Release | Applicability |                                                         | Tested Bands/CA/DC-Configurations Selection | Branch                                                                            | Additional Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|            |                                                                   |         | Condition     | Comment                                                 |                                             |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6.5B.3.3.2 | Spurious emission band UE co-existence for Inter-band within FR1  | Rel-15  | C011          | UEs supporting Inter-band EN-DC within FR1 (2UL CCs)    | E005                                        |                                                                                   | For LTE anchor agnostic approach testing in TC 6.5B.3.3.2:<br>1. NOTE 5 applied.<br>2. Skip the testing if UE supports SA and TS 38.521-1 TC 6.5.3.2 has been executed.<br>For exception requirements testing where LTE anchor agnostic approach not apply:<br>1. NOTE 6<br>2. Skip the testing if UE supports the same FR1 UL CA configuration and TS 38.521-1 TC 6.5A.3.2.1 has been executed, or UE supports the same SUL configuration and TS 38.521-1 TC 6.5C.3.2 has been executed |
| 6.5B.3.4.1 | General Spurious Emissions for Inter-band including FR2 (1 NR CC) | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.3.4.1 if UE supports SA and TS 38.521-2 TC 6.5.3.1 has been executed.                                                                                                                                                                                                                                                                                                                                                                                             |

| Clause              | TC Title                                                                           | Release | Applicability |                                                                                                 | Tested Bands/CA/DC-Configurations Selection | Branch                                                     | Additional Information                                                                              |
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|                     |                                                                                    |         | Condition     | Comment                                                                                         |                                             |                                                            |                                                                                                     |
| 6.5B.3.4.1a         | General Spurious Emissions with Power Boost for Inter-band including FR2 (1 NR CC) | Rel-16  | C012w         | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC and <i>mpr-PowerBoost-FR2-r16</i> | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.3.4.1a if UE supports SA and TS 38.521-2 TC 6.5.3.1_1 has been executed.     |
| <b>6.5B.3.4.1_1</b> | <b>General Spurious emissions for Inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                                                 |                                             |                                                            |                                                                                                     |
| 6.5B.3.4.1_1.1      | General Spurious Emissions for Inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs                                  | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.1_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.1 has been executed. |
| 6.5B.3.4.1_1.2      | General Spurious Emissions for Inter-band EN-DC including FR2 (3 NR CCs)           | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs                                  | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.1_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.2 has been executed. |
| 6.5B.3.4.1_1.3      | General Spurious Emissions for Inter-band EN-DC including FR2 (4 NR CCs)           | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs                                  | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.1_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.3 has been executed. |
| 6.5B.3.4.1_1.4      | General Spurious Emissions for Inter-band EN-DC including FR2 (5 NR CCs)           | Rel-15  | C012i         | UEs supporting Inter-Band EN-DC including FR2 with 5 NR UL CCs                                  | E014a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.1_1.4 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.4 has been executed. |

| Clause         | TC Title                                                                      | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                                            | Additional Information                                                                              |
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|                |                                                                               |         | Condition     | Comment                                                        |                                             |                                                                                   |                                                                                                     |
| 6.5B.3.4.1_1.5 | General Spurious Emissions for Inter-band EN-DC including FR2 (6 NR CCs)      | Rel-15  | C012j         | UEs supporting Inter-Band EN-DC including FR2 with 6 NR UL CCs | E039                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                               | NOTE 5<br>Skip TC 6.5B.3.4.1_1.5 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.5 has been executed. |
| 6.5B.3.4.1_1.6 | General Spurious Emissions for Inter-band EN-DC including FR2 (7 NR CCs)      | Rel-15  | C012k         | UEs supporting Inter-Band EN-DC including FR2 with 7 NR UL CCs | E040                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                               | NOTE 5<br>Skip TC 6.5B.3.4.1_1.6 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.6 has been executed. |
| 6.5B.3.4.1_1.7 | General Spurious Emissions for Inter-band EN-DC including FR2 (8 NR CCs)      | Rel-15  | C012l         | UEs supporting Inter-Band EN-DC including FR2 with 8 NR UL CCs | E041                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)                               | NOTE 5<br>Skip TC 6.5B.3.4.1_1.7 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.7 has been executed. |
| 6.5B.3.4.1D    | General Spurious Emissions for inter-band EN-DC including FR2 for UL MIMO     | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO      | E043                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1)                        | NOTE 5<br>Skip TC 6.5B.3.4.1D if UE supports SA and TS 38.521-2 TC 6.5D.3.1 has been executed.      |
| 6.5B.3.4.2     | Spurious emission band UE co-existence for Inter-band including FR2 (1 NR CC) | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC        | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.3.4.2 if UE supports SA and TS 38.521-2 TC 6.5.3.2 has been executed.        |

| Clause              | TC Title                                                                                       | Release | Applicability |                                                                                                 | Tested Bands/CA/DC-Configurations Selection | Branch                                                     | Additional Information                                                                              |
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|                     |                                                                                                |         | Condition     | Comment                                                                                         |                                             |                                                            |                                                                                                     |
| 6.5B.3.4.2a         | Spurious emission band UE co-existence with Power Boost for Inter-band including FR2 (1 NR CC) | Rel-16  | C012w         | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC and <i>mpr-PowerBoost-FR2-r16</i> | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.3.4.2a if UE supports SA and TS 38.521-2 TC 6.5.3.2_1 has been executed.     |
| <b>6.5B.3.4.2_1</b> | <b>Spurious emission band UE co-existence for Inter-band including FR2 (&gt;1 NR CC)</b>       |         |               |                                                                                                 |                                             |                                                            |                                                                                                     |
| 6.5B.3.4.2_1.1      | Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (2NR CCs)            | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs                                  | E011                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.2_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.3.2.1 has been executed. |
| 6.5B.3.4.2_1.2      | Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (3NR CCs)            | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs                                  | E012                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.2_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.3.2.2 has been executed. |
| 6.5B.3.4.2_1.3      | Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (4NR CCs)            | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs                                  | E013                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.2_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.3.2.3 has been executed. |
| 6.5B.3.4.2_1.4      | Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (5 NR CCs)           | Rel-15  | C012i         | UEs supporting Inter-Band EN-DC including FR2 with 5 NR UL CCs                                  | E014a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.2_1.4 if UE supports SA and TS 38.521-2 TC 6.5A.3.2.4 has been executed. |

| Clause         | TC Title                                                                              | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                     | Additional Information                                                                              |
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|                |                                                                                       |         | Condition     | Comment                                                        |                                             |                                                            |                                                                                                     |
| 6.5B.3.4.2_1.5 | Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (6 NR CCs)  | Rel-15  | C012j         | UEs supporting Inter-Band EN-DC including FR2 with 6 NR UL CCs | E039                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.2_1.5 if UE supports SA and TS 38.521-2 TC 6.5A.3.2.5 has been executed. |
| 6.5B.3.4.2_1.6 | Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (7 NR CCs)  | Rel-15  | C012k         | UEs supporting Inter-Band EN-DC including FR2 with 7 NR UL CCs | E040                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.2_1.6 if UE supports SA and TS 38.521-2 TC 6.5A.3.2.6 has been executed. |
| 6.5B.3.4.2_1.7 | Spurious emission band UE co-existence for Inter-band EN-DC including FR2 (8 NR CCs)  | Rel-15  | C012l         | UEs supporting Inter-Band EN-DC including FR2 with 8 NR UL CCs | E041                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)        | NOTE 5<br>Skip TC 6.5B.3.4.2_1.7 if UE supports SA and TS 38.521-2 TC 6.5A.3.2.7 has been executed. |
| 6.5B.3.4.2D    | Spurious emission band UE co-existence for inter-band EN-DC including FR2 for UL MIMO | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO      | E043                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.3.4.2D if UE supports SA and TS 38.521-2 TC 6.5D.3.2 has been executed.      |
| 6.5B.4.1       | Additional Spurious Emissions for Intra-band contiguous EN-DC                         | Rel-15  | C009          | UEs supporting intra-band contiguous EN-DC (2UL CCs)           | E003                                        |                                                            |                                                                                                     |
| 6.5B.4.2       | Additional Spurious Emissions for Intra-band non-contiguous EN-DC                     | Rel-15  | C010          | UEs supporting intra-band non-contiguous EN-DC (2UL CCs)       | E004                                        |                                                            | NOTE 1                                                                                              |
| 6.5B.4.3       | Additional Spurious Emissions for Inter-band EN-DC within FR1 (1 NR CC)               | Rel-15  | C011b         | UEs supporting inter-band EN-DC within FR1 with 1 NR UL CC     | E005b                                       |                                                            | NOTE 5<br>Skip TC 6.5B.4.3 if UE supports SA and TS 38.521-1 TC 6.5.3.3 has been executed.          |

| Clause            | TC Title                                                                              | Release | Applicability |                                                                                                 | Tested Bands/CA/DC-Configurations Selection | Branch                                                            | Additional Information                                                                              |
|-------------------|---------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|                   |                                                                                       |         | Condition     | Comment                                                                                         |                                             |                                                                   |                                                                                                     |
| 6.5B.4.4          | Additional Spurious Emissions for Inter-band including FR2 (1 NR CC)                  | Rel-15  | C012          | UEs supporting Inter-band including FR2 with 1 NR UL CC                                         | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.4.4 if UE supports SA and TS 38.521-2 TC 6.5.3.3 has been executed.          |
| 6.5B.4.4a         | Additional Spurious Emissions with Power Boost for Inter-band including FR2 (1 NR CC) | Rel-16  | C012w         | UEs supporting inter-band EN-DC including FR2 with 1 NR UL CC and <i>mpr-PowerBoost-FR2-r16</i> | E010                                        | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.4.4a if UE supports SA and TS 38.521-2 TC 6.5.3.3_1 has been executed.       |
| <b>6.5B.4.4_1</b> | <b>Additional Spurious Emissions for Inter-band including FR2 (&gt;1 NR CC)</b>       |         |               |                                                                                                 |                                             |                                                                   |                                                                                                     |
| 6.5B.4.4_1.1      | Additional Spurious Emissions for Inter-band including FR2 (2 NR CC)                  | Rel-15  | C012b         | UEs supporting Inter-Band EN-DC including FR2 with 2 NR UL CCs                                  | E011                                        |                                                                   | NOTE 5<br>Skip TC 6.5B.4.4_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.3.3.1 has been executed.   |
| 6.5B.4.4_1.2      | Additional Spurious Emissions for Inter-band including FR2 (3 NR CC)                  | Rel-15  | C012c         | UEs supporting Inter-Band EN-DC including FR2 with 3 NR UL CCs                                  | E012                                        |                                                                   | NOTE 5<br>Skip TC 6.5B.4.4.1_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.3.3.2 has been executed. |
| 6.5B.4.4_1.3      | Additional Spurious Emissions for Inter-band including FR2 (4 NR CC)                  | Rel-15  | C012d         | UEs supporting Inter-Band EN-DC including FR2 with 4 NR UL CCs                                  | E013                                        |                                                                   | NOTE 5<br>Skip TC 6.5B.4.4.1_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.3.3.3 has been executed. |

| Clause          | TC Title                                                                       | Release | Applicability |                                                                                                              | Tested Bands/CA/DC-Configurations Selection | Branch                                              | Additional Information                                                                           |
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|                 |                                                                                |         | Condition     | Comment                                                                                                      |                                             |                                                     |                                                                                                  |
| 6.5B.4.4D       | Additional Spurious Emissions for Inter-band including FR2 for UL MIMO         | Rel-15  | C012p         | UEs supporting Inter-Band EN-DC including FR2 and UL MIMO                                                    | E043                                        | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC 6.5B.4.4D if UE supports SA and TS 38.521-2<br>TC 6.5D.3.3 has been executed.  |
| 6.5B.5.3        | Transmit Intermodulation for Inter-band EN-DC within FR1 (1 NR CC)             | Rel-15  | C011b         | UEs supporting Inter-band EN-DC within FR1 with 1 NR UL CC                                                   | E005b                                       |                                                     | NOTE 5<br>Skip TC 6.5B.5.3 if UE supports SA and TS 38.521-1<br>TC 6.5.4 has been executed.      |
| <b>6.5E.3.2</b> | <b>Spurious emission band UE co-existence for V2X</b>                          |         |               |                                                                                                              |                                             |                                                     |                                                                                                  |
| 6.5E.3.2.2      | Spurious emission band UE co-existence for inter-band V2X                      | Rel-16  | C079e         | UEs supporting V2X inter-band operation in FR1 with transmission assigned to one E-UTRA band and one NR band | E053                                        |                                                     |                                                                                                  |
| 6.5H.1.3        | Occupied bandwidth for inter-band EN-DC with UL MIMO within FR1                | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                                                       | E045                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.5H.1.3 if UE supports SA and TS 38.521-1<br>TC 6.5D.1 has been executed.     |
| 6.5H.2.3.1      | Spectrum emission mask for inter-band EN-DC with UL MIMO within FR             | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                                                       | E045                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.5H.2.3.1 if UE supports SA and TS 38.521-1<br>TC 6.5D.2.2 has been executed. |
| 6.5H.2.3.2      | Additional spectrum emission mask for inter-band EN-DC with UL MIMO within FR1 | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO                                                       | E045                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.5H.2.3.2 if UE supports SA and TS 38.521-1<br>TC 6.5D.2.3 has been executed. |

| Clause     | TC Title                                                                            | Release | Applicability |                                                             | Tested Bands/CA/DC-Configurations Selection | Branch     | Additional Information                                                                           |
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|            |                                                                                     |         | Condition     | Comment                                                     |                                             |            |                                                                                                  |
| 6.5H.2.3.3 | NR ACLR for inter-band EN-DC with UL MIMO within FR1                                | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.5H.2.3.3 if UE supports SA and TS 38.521-1<br>TC 6.5D.2.4 has been executed. |
| 6.5H.3.3.1 | General spurious emissions for inter-band EN-DC with UL MIMO within FR1             | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 |                                                                                                  |
| 6.5H.3.3.2 | Spurious emissions for UE co-existence for inter-band EN-DC with UL MIMO within FR1 | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 |                                                                                                  |
| 6.5H.4.3   | Additional spurious emissions for inter-band EN-DC with UL MIMO within FR1          | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.5H.4.3 if UE supports SA and TS 38.521-1<br>TC 6.5D.3.3 has been executed.   |
| 6.5H.5.3   | Transmit intermodulation for inter-band EN-DC with UL MIMO within FR1               | Rel-17  | C330          | UEs supporting inter-band EN-DC (2UL CCs) with UL MIMO      | E045                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.5H.5.3 if UE supports SA and TS 38.521-1<br>TC 6.5D.4 has been executed.     |
| 6.5L.1.3   | Occupied bandwidth for inter-band EN-DC with Tx Diversity within FR1                | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.5L.1.3 if UE supports SA and TS 38.521-1<br>TC 6.5G.1 has been executed.     |
| 6.5L.2.3.1 | Spectrum emission mask for inter-band EN-DC with Tx Diversity within FR1            | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.5L.2.3.1 if UE supports SA and TS 38.521-1<br>TC 6.5G.2.2 has been executed. |
| 6.5L.2.3.2 | Additional spectrum emission mask for inter-band EN-DC with Tx Diversity within FR1 | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity | E046                                        | PC3<br>PC2 | NOTE 5<br>Skip TC 6.5L.2.3.2 if UE supports SA and TS 38.521-1<br>TC 6.5G.2.3 has been executed. |

| Clause     | TC Title                                                                                 | Release | Applicability |                                                                                                                                                                                                                                                                                                    | Tested Bands/CA/DC-Configurations Selection | Branch                                              | Additional Information                                                                              |
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|            |                                                                                          |         | Condition     | Comment                                                                                                                                                                                                                                                                                            |                                             |                                                     |                                                                                                     |
| 6.5L.2.3.3 | NR ACLR for inter-band EN-DC with Tx Diversity within FR1                                | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity                                                                                                                                                                                                                                        | E046                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.5L.2.3.3 if UE supports SA and TS 38.521-1<br>TC 6.5G.2.4 has been executed.    |
| 6.5L.3.3.1 | General spurious emissions for inter-band EN-DC with Tx Diversity within FR1             | Rel-17  | C331          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity                                                                                                                                                                                                                                        | E046                                        | PC3<br>PC2                                          |                                                                                                     |
| 6.5L.3.3.2 | Spurious emissions for UE co-existence for inter-band EN-DC with Tx Diversity within FR1 | Rel-17  | C331          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity                                                                                                                                                                                                                                        | E046                                        | PC3<br>PC2                                          |                                                                                                     |
| 6.5L.4.3   | Additional spurious emissions for inter-band EN-DC with Tx Diversity within FR1          | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity                                                                                                                                                                                                                                        | E046                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.5L.4.3 if UE supports SA and TS 38.521-1<br>TC 6.5G.3.3 has been executed.      |
| 6.5L.5.3   | Transmit intermodulation for inter-band EN-DC with Tx Diversity within FR1               | Rel-17  | C332          | UEs supporting inter-band EN-DC (2UL CCs) with Tx Diversity                                                                                                                                                                                                                                        | E046                                        | PC3<br>PC2                                          | NOTE 5<br>Skip TC 6.5L.5.3 if UE supports SA and TS 38.521-1<br>TC 6.5G.4 has been executed.        |
| 6.6B.4     | Beam Correspondence for inter-band EN-DC including FR2 (1 NR CC) - EIRP                  | Rel-15  | C011b         | UEs supporting Inter-band EN-DC within FR2 with 1 NR UL CC and not beam correspondence without UL beam sweeping and release 16 and forward UEs that do not support SSB-based or CSI-RS based enhanced beam correspondence and do not support enhanced beam correspondence without UL beam sweeping | E010                                        | PC3<br>PC5 (NOTE 1)<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 6.6B.4 if UE supports SA and TS 38.521-2<br>TC 6.6.1 has been executed.           |
| 6.6B.5     | Enhanced Beam correspondence for inter-band EN-DC including FR2 (1 NR CC) - EIRP         | Rel-16  | C011b         | UEs supporting Inter-band EN-DC within 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                                                                                                              | E010                                        |                                                     | NOTE 1<br>NOTE 5<br>Skip TC 6.6B.5 if UE supports SA and TS 38.521-2<br>TC 6.6.2 has been executed. |
| 7          | Receiver Characteristics                                                                 |         |               |                                                                                                                                                                                                                                                                                                    |                                             |                                                     |                                                                                                     |
| 7.3B       | Reference sensitivity level for DC                                                       |         |               |                                                                                                                                                                                                                                                                                                    |                                             |                                                     |                                                                                                     |

| Clause            | TC Title                                                                      | Release | Applicability |                                                               | Tested Bands/CA/DC-Configurations Selection | Branch                                                                   | Additional Information                                                                                                                                              |
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|                   |                                                                               |         | Condition     | Comment                                                       |                                             |                                                                          |                                                                                                                                                                     |
| 7.3B.2.1          | Reference sensitivity for intra-band contiguous EN-DC (2 CCs)                 | Rel-15  | C009a         | UEs supporting intra-band contiguous EN-DC (2DL CCs)          | E003a                                       |                                                                          |                                                                                                                                                                     |
| 7.3B.2.2          | Reference sensitivity for Intra-band non-contiguous EN-DC (2 CCs)             | Rel-15  | C010a         | UEs supporting intra-band non-contiguous EN-DC (2DL CCs)      | E004a                                       |                                                                          | NOTE 5<br>Skip TC 7.3B.2.2 if UE supports SA and TS 38.521-1 TC 7.3.2 has been executed.                                                                            |
| 7.3B.2.3          | Reference sensitivity for Inter-band EN-DC within FR1 (2 CCs)                 | Rel-15  | C011a         | UEs supporting inter-band EN-DC within FR1 (2DL CCs)          | E005a<br>E005d                              | PC2<br>PC3                                                               | For LTE anchor agnostic approach testing in TC 7.3B.2.3:<br>1. NOTE 5 applied.<br>2. Skip the testing if UE supports SA and TS 38.521-1 TC 7.3.2 has been executed. |
| <b>7.3B.2.3_1</b> | <b>Reference sensitivity for EN-DC within FR1 (&gt;2 CCs)</b>                 |         |               |                                                               |                                             |                                                                          |                                                                                                                                                                     |
| 7.3B.2.3_1.1      | Reference sensitivity for EN-DC within FR1 (3 CCs)                            | Rel-15  | C045          | UEs supporting EN-DC within FR1 (3DL CCs)                     | E006                                        |                                                                          |                                                                                                                                                                     |
| 7.3B.2.3_1.2      | Reference sensitivity for EN-DC within FR1 (4 CCs)                            | Rel-15  | C046          | UEs supporting EN-DC within FR1 (4DL CCs)                     | E007                                        |                                                                          |                                                                                                                                                                     |
| 7.3B.2.3_1.3      | Reference sensitivity for EN-DC within FR1 (5 CCs)                            | Rel-15  | C047          | UEs supporting EN-DC within FR1 (5DL CCs)                     | E008                                        |                                                                          |                                                                                                                                                                     |
| 7.3B.2.4          | Reference sensitivity for Inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012a         | UEs supporting inter-band EN-DC including FR2 with 1 NR DL CC | E010a                                       | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 7.3B.2.4 if UE supports SA and TS 38.521-2 TC 7.3.2 has been executed.                                                                            |
| <b>7.3B.2.4_1</b> | <b>Reference sensitivity for Inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                               |                                             |                                                                          |                                                                                                                                                                     |

| Clause       | TC Title                                                            | Release | Applicability |                                                                | Tested Bands/CA/DC-Configurations Selection | Branch                                                       | Additional Information                                                                                |
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|              |                                                                     |         | Condition     | Comment                                                        |                                             |                                                              |                                                                                                       |
| 7.3B.2.4_1.1 | Reference sensitivity for Inter-band EN-DC including FR2 (2 NR CCs) | Rel-15  | C012e         | UEs supporting inter-band EN-DC including FR2 with 2 NR DL CCs | E011a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)          | NOTE 5<br>Skip TC<br>7.3B.2.4_1.1 if UE supports SA and TS 38.521-2 TC<br>7.3A.2.1 has been executed. |
| 7.3B.2.4_1.2 | Reference sensitivity for Inter-band EN-DC including FR2 (3 NR CCs) | Rel-15  | C012g         | UEs supporting inter-band EN-DC including FR2 with 3 NR DL CCs | E012a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)          | NOTE 5<br>Skip TC<br>7.3B.2.4_1.2 if UE supports SA and TS 38.521-2 TC<br>7.3A.2.2 has been executed. |
| 7.3B.2.4_1.3 | Reference sensitivity for Inter-band EN-DC including FR2 (4 NR CCs) | Rel-15  | C012h         | UEs supporting inter-band EN-DC including FR2 with 4 NR DL CCs | E013a                                       | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)          | NOTE 5<br>Skip TC<br>7.3B.2.4_1.3 if UE supports SA and TS 38.521-2 TC<br>7.3A.2.3 has been executed. |
| 7.3B.2.4_1.4 | Reference sensitivity for Inter-band EN-DC including FR2 (5 NR CCs) | Rel-15  | FFS           | UEs supporting inter-band EN-DC including FR2 with 5 NR DL CCs | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC<br>7.3B.2.4_1.4 if UE supports SA and TS 38.521-2 TC<br>7.3A.2.4 has been executed. |
| 7.3B.2.4_1.5 | Reference sensitivity for Inter-band EN-DC including FR2 (6 NR CCs) | Rel-15  | FFS           | UEs supporting inter-band EN-DC including FR2 with 6 NR DL CCs | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1) | NOTE 5<br>Skip TC<br>7.3B.2.4_1.5 if UE supports SA and TS 38.521-2 TC<br>7.3A.2.5 has been executed. |

| Clause        | TC Title                                                             | Release | Applicability |                                                                                                              | Tested Bands/CA/DC-Configurations Selection | Branch                                                                            | Additional Information                                                                          |
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|               |                                                                      |         | Condition     | Comment                                                                                                      |                                             |                                                                                   |                                                                                                 |
| 7.3B.2.4_1.6  | Reference sensitivity for Inter-band EN-DC including FR2 (7 NR CCs)  | Rel-15  | FFS           | UEs supporting inter-band EN-DC including FR2 with 7 NR DL CCs                                               | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                      | NOTE 5<br>Skip TC 7.3B.2.4_1.6 if UE supports SA and TS 38.521-2 TC 7.3A.2.6 has been executed. |
| 7.3B.2.4_1.7  | Reference sensitivity for Inter-band EN-DC including FR2 (8 NR CCs)  | Rel-15  | FFS           | UEs supporting inter-band EN-DC including FR2 with 8 NR DL CCs                                               | FFS                                         | PC1 (NOTE 1)<br>PC2 (NOTE 1)<br>PC3 (NOTE 1)<br>PC4 (NOTE 1)                      | NOTE 5<br>Skip TC 7.3B.2.4_1.7 if UE supports SA and TS 38.521-2 TC 7.3A.2.7 has been executed. |
| 7.3B.2.4D     | Reference sensitivity for inter-band EN-DC including FR2 for UL MIMO | Rel-15  | N/A           | No test case details are specified in TS 38.521-3.                                                           |                                             |                                                                                   | NOTE 1                                                                                          |
| 7.3B.4        | EIS Spherical Coverage for Inter-band EN-DC including FR2 (1 NR CC)  | Rel-15  | C012a         | UEs supporting inter-band EN-DC including FR2 with 1 NR DL CC                                                | E010a                                       | PC1<br>PC2 (NOTE 1)<br>PC3<br>PC4 (NOTE 1)<br>PC5<br>PC6 (NOTE 1)<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 7.3B.4 if UE supports SA and TS 38.521-2 TC 7.3.4 has been executed.          |
| <b>7.3E.2</b> | <b>Reference sensitivity for V2X</b>                                 |         |               |                                                                                                              |                                             |                                                                                   |                                                                                                 |
| 7.3E.2.3      | Reference sensitivity for Inter-band V2X                             | Rel-16  | C079e         | UEs supporting V2X inter-band operation in FR1 with transmission assigned to one E-UTRA band and one NR band | E053                                        |                                                                                   |                                                                                                 |
| <b>7.4B</b>   | <b>Maximum Input Level for DC</b>                                    |         |               |                                                                                                              |                                             |                                                                                   |                                                                                                 |
| 7.4B.1        | Maximum Input Level for Intra-Band Contiguous EN-DC (2 CCs)          | Rel-15  | C009a         | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs)                                                         | E003a                                       |                                                                                   |                                                                                                 |

| Clause          | TC Title                                                                    | Release | Applicability |                                                                                        | Tested Bands/CA/DC-Configurations Selection | Branch | Additional Information                                                               |
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|                 |                                                                             |         | Condition     | Comment                                                                                |                                             |        |                                                                                      |
| 7.4B.2          | Maximum Input Level for Intra-Band Non-Contiguous EN-DC (2 CCs)             | Rel-15  | C010a         | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs)                               | E004a                                       |        | NOTE 5<br>Skip TC 7.4B.2 if UE supports SA and TS 38.521-1 TC 7.4 has been executed  |
| 7.4B.3          | Maximum Input Level for Inter-band EN-DC within FR1 (1 NR CC)               | Rel-15  | C011c         | UEs supporting Inter-band EN-DC within FR1 with 1 NR DL CC                             | E005c                                       |        | NOTE 5<br>Skip TC 7.4B.3 if UE supports SA and TS 38.521-1 TC 7.4 has been executed. |
| <b>7.4B.3_1</b> | <b>Maximum Input Level for EN-DC within FR1 (&gt;2 CCs)</b>                 |         |               |                                                                                        |                                             |        |                                                                                      |
| 7.4B.3_1.1      | Maximum Input Level for EN-DC within FR1 (3 CCs)                            | Rel-15  | C045          | UEs supporting EN-DC within FR1 (3DL CCs)                                              | E006                                        |        |                                                                                      |
| 7.4B.3_1.2      | Maximum Input Level for EN-DC within FR1 (4 CCs)                            | Rel-15  | C046          | UEs supporting EN-DC within FR1 (4DL CCs)                                              | E007                                        |        |                                                                                      |
| 7.4B.3_1.3      | Maximum Input Level for EN-DC within FR1 (5 CCs)                            | Rel-15  | C047          | UEs supporting EN-DC within FR1 (5DL CCs)                                              | E008                                        |        |                                                                                      |
| 7.4B.3_1.4      | Maximum Input Level for EN-DC within FR1 (6 CCs)                            | Rel-15  | FFS           | FFS                                                                                    | FFS                                         |        | NOTE 1                                                                               |
| 7.4B.4          | Maximum Input Level for inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | N/A           | Not recommended due to testability issues                                              | N/A                                         |        | NOTE 1                                                                               |
| <b>7.4B.4_1</b> | <b>Maximum Input Level for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                                        |                                             |        |                                                                                      |
| 7.4B.4_1.1      | Maximum Input Level for inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | N/A           | Not recommended due to testability issues<br>Not recommended due to testability issues |                                             |        | NOTE 1                                                                               |
| 7.4B.4_1.2      | Maximum Input Level for inter-band EN-DC including FR2 (3 NR CCs)           | Rel-15  | N/A           | Not recommended due to testability issues                                              |                                             |        | NOTE 1                                                                               |
| 7.4B.4_1.3      | Maximum Input Level for inter-band EN-DC including FR2 (4 NR CCs)           | Rel-15  | N/A           | Not recommended due to testability issues                                              |                                             |        | NOTE 1                                                                               |
| 7.4B.4_1.4      | Maximum Input Level for inter-band EN-DC including FR2 (5 NR CCs)           | Rel-15  | N/A           | Not recommended due to testability issues                                              |                                             |        | NOTE 1                                                                               |
| 7.4B.4D         | Maximum Input Level for inter-band EN-DC including FR2 for UL MIMO          | Rel-15  | N/A           | No test case details are specified in TS 38.521-3.                                     |                                             |        | NOTE 1                                                                               |
| <b>7.5B</b>     | <b>Adjacent channel selectivity for DC</b>                                  |         |               |                                                                                        |                                             |        |                                                                                      |
| 7.5B.1          | Adjacent Channel Selectivity for intra-band contiguous EN-DC (2 CCs)        | Rel-15  | C009a         | UEs supporting intra-band contiguous EN-DC (2DL CCs)                                   | E003a                                       |        | NOTE 1                                                                               |

| Clause          | TC Title                                                                 | Release | Applicability |                                                                                          | Tested Bands/CA/DC-Configurations Selection | Branch | Additional Information                                                                                |
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|                 |                                                                          |         | Condition     | Comment                                                                                  |                                             |        |                                                                                                       |
| 7.5B.2          | Adjacent Channel Selectivity for intra-band non-contiguous EN-DC (2 CCs) | Rel-15  | C010a         | UEs supporting intra-band non-contiguous EN-DC (2DL CCs)                                 | E004a                                       |        | NOTE 1<br>NOTE 5<br>Skip TC 7.5B.2 if UE supports SA and TS 38.521-1 TC 7.5 has been executed.        |
| 7.5B.3          | Adjacent Channel Selectivity for inter-band EN-DC within FR1 (1 NR CC)   | Rel-15  | C011c         | UEs supporting inter-band EN-DC within FR1 with 1 NR DL CCs and one or more LTE DL CC(s) | E005c                                       |        | NOTE 5<br>Skip TC 7.5B.3 if UE supports SA and TS 38.521-1 TC 7.5 has been executed.                  |
| <b>7.5B.3_1</b> | <b>Adjacent Channel Selectivity for EN-DC within FR1 (&gt;2 CCs)</b>     |         |               |                                                                                          |                                             |        |                                                                                                       |
| 7.5B.3_1.1      | Adjacent Channel Selectivity for EN-DC within FR1 (2 NR CCs)             | Rel-15  | C063          | UEs supporting inter-band or intra-band non-contiguous EN-DC within FR1 with 2 NR DL CCs | E027<br>E029                                |        | NOTE 5<br>Skip TC 7.5B.3_1.1 if UE supports SA and TS 38.521-1 TC 7.5A.1 has been executed.           |
| 7.5B.3_1.2      | Adjacent Channel Selectivity for EN-DC within FR1 (3 NR CCs)             | Rel-15  | C064          | UEs supporting inter-band or intra-band non-contiguous EN-DC within FR1 with 3 NR DL CCs | E028<br>E030                                |        | NOTE 5<br>Skip TC 7.5B.3_1.2 if UE supports SA and TS 38.521-1 TC 7.5A.2 has been executed.           |
| 7.5B.3_1.3      | Adjacent Channel Selectivity for EN-DC within FR1 (4 NR CCs)             | Rel-15  | C064a         | UEs supporting intra-band non-contiguous EN-DC within FR1 with 4 NR DL CCs               | E028a<br>E030a                              |        | NOTE 5<br>Skip TC 7.5B.3_1.3 if UE supports SA and TS 38.521-1 TC 7.5A.3 has been executed.           |
| 7.5B.3_1.4      | Adjacent Channel Selectivity for EN-DC within FR1 (5 NR CCs)             | Rel-15  | C064b         | UEs supporting intra-band non-contiguous EN-DC within FR1 with 5 NR DL CCs               | E028b<br>E030b                              |        | NOTE 1<br>NOTE 5<br>Skip TC 7.5B.3_1.4 if UE supports SA and TS 38.521-1 TC 7.5A.4 has been executed. |

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|                   |                                                                                      |         | Condition     | Comment                                                       |                                             |                                   |                                                                                              |
| 7.5B.4            | Adjacent Channel Selectivity for inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012a         | UEs supporting inter-band EN-DC including FR2 with 1 NR DL CC | E010a                                       | PC1<br>PC3<br>PC5<br>PC7 (NOTE 1) | NOTE 5<br>Skip TC 7.5B.4 if UE supports SA and TS 38.521-2<br>TC 7.5 has been executed.      |
| <b>7.5B.4_1</b>   | <b>Adjacent Channel Selectivity for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                               |                                             |                                   |                                                                                              |
| 7.5B.4_1.1        | Adjacent Channel Selectivity for inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | FFS           | FFS                                                           | FFS                                         |                                   | NOTE 1                                                                                       |
| 7.5B.4_1.2        | Void                                                                                 |         |               |                                                               |                                             |                                   |                                                                                              |
| 7.5B.4_1.3        | Void                                                                                 |         |               |                                                               |                                             |                                   |                                                                                              |
| 7.5B.4_1.4        | Void                                                                                 |         |               |                                                               |                                             |                                   |                                                                                              |
| 7.5B.4D           | Adjacent Channel Selectivity for inter-band EN-DC including FR2 for UL MIMO          | Rel-15  | N/A           | No test case details are specified in TS 38.521-3.            |                                             |                                   | NOTE 1                                                                                       |
| <b>7.6B</b>       | <b>Blocking characteristics for DC</b>                                               |         |               |                                                               |                                             |                                   |                                                                                              |
| 7.6B.2.1          | Inband blocking for intra-band contiguous EN-DC (2 CCs)                              | Rel-15  | C009a         | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs)          | E003a                                       |                                   |                                                                                              |
| 7.6B.2.2          | Inband blocking for intra-band non-contiguous EN-DC (2 CCs)                          | Rel-15  | C010a         | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs)      | E004a                                       |                                   | NOTE 5<br>Skip TC 7.6B.2.2 if UE supports SA and TS 38.521-1<br>TC 7.6.2 has been executed.  |
| 7.6B.2.3          | Inband blocking for inter-band EN-DC within FR1 (1 NR CC)                            | Rel-15  | C011c         | UEs supporting Inter-band EN-DC within FR1 with 1 NR DL CC    | E005c                                       |                                   | NOTE 5<br>Skip TC 7.6B.2.3 if UE supports SA and TS 38.521-1<br>TC 7.6. 2 has been executed. |
| <b>7.6B.2.3_1</b> | <b>Inband blocking for EN-DC within FR1 (&gt;2 CCs)</b>                              |         |               |                                                               |                                             |                                   |                                                                                              |
| 7.6B.2.3_1.1      | Inband blocking for EN-DC within FR1 (3 CCs)                                         | Rel-15  | C045          | UEs supporting EN-DC within FR1 (3DL CCs)                     | E006                                        |                                   |                                                                                              |
| 7.6B.2.3_1.2      | Inband blocking for EN-DC within FR1 (4 CCs)                                         | Rel-16  | C046          | UEs supporting EN-DC within FR1 (4DL CCs)                     | E007                                        |                                   |                                                                                              |

| Clause            | TC Title                                                                | Release | Applicability |                                                                     | Tested Bands/CA/DC-Configurations Selection | Branch | Additional Information                                                                                    |
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|                   |                                                                         |         | Condition     | Comment                                                             |                                             |        |                                                                                                           |
| 7.6B.2.3_1.3      | Inband blocking for EN-DC within FR1 (5 CCs)                            | Rel-16  | C047          | UEs supporting EN-DC within FR1 (5DL CCs)                           | E008                                        |        | Skip TC 7.6B.2.3_1.3 if UE supports SA and TS 38.521-1 TC 7.6A.2.3 has been executed.                     |
| 7.6B.2.4          | Inband blocking for inter-band EN-DC including FR2 (1 NR CC)            | Rel-15  | C012a         | UEs supporting Inter-band EN-DC including FR2 with 1 NR DL CC       | E010a                                       |        | NOTE 5<br>Skip TC 7.6B.2.4 if UE supports SA and TS 38.521-2 TC 7.6.2 has been executed.                  |
| <b>7.6B.2.4_1</b> | <b>Inband blocking for inter-band EN-DC including FR2 (&gt;1 NR CC)</b> |         |               |                                                                     |                                             |        |                                                                                                           |
| 7.6B.2.4_1.1      | Inband blocking for inter-band EN-DC including FR2 (2 NR CCs)           | Rel-15  | FFS           | FFS                                                                 | FFS                                         |        | NOTE 1<br>NOTE 5<br>Skip TC 7.6B.2.4_1.1 if UE supports SA and TS 38.521-2 TC 7.6A.2.1 has been executed. |
| 7.6B.2.4_1.2      | Void                                                                    |         |               |                                                                     |                                             |        |                                                                                                           |
| 7.6B.2.4_1.3      | Void                                                                    |         |               |                                                                     |                                             |        |                                                                                                           |
| 7.6B.2.4_1.4      | Void                                                                    |         |               |                                                                     |                                             |        |                                                                                                           |
| 7.6B.2.4D         | Inband blocking for inter-band EN-DC including FR2 for UL MIMO          | Rel-15  | N/A           | No test case details are specified in TS 38.521-3.                  |                                             |        | NOTE 1                                                                                                    |
| 7.6B.3.1          | Out-of-band blocking for intra-band contiguous EN-DC (2 CCs)            | Rel-15  | C009a         | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs)                | E003a                                       |        |                                                                                                           |
| 7.6B.3.2          | Out-of-band blocking for intra-band non-contiguous EN-DC (2 CCs)        | Rel-15  | C010a         | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs)            | E004a                                       |        | NOTE 5<br>Skip TC 7.6B.3.2 if UE supports SA and TS 38.521-1 TC 7.6.3 has been executed.                  |
| 7.6B.3.3          | Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs)            | Rel-15  | C011a         | UEs supporting Inter-band EN-DC within FR1 (2DL CCs)                | E005a                                       |        |                                                                                                           |
| <b>7.6B.3.3_1</b> | <b>Out-of-band blocking for EN-DC within FR1 (&gt;2 CCs)</b>            |         |               |                                                                     |                                             |        |                                                                                                           |
| 7.6B.3.3_1.1      | Out-of-band blocking for EN-DC within FR1 (3 CCs)                       | Rel-15  | C048          | UEs supporting intra-band contiguous EN-DC within FR1 with 3 DL CCs | E006                                        |        |                                                                                                           |

| Clause            | TC Title                                                         | Release | Applicability |                                                                     | Tested Bands/CA/DC-Configurations Selection | Branch | Additional Information                                                                   |
|-------------------|------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------|---------------------------------------------|--------|------------------------------------------------------------------------------------------|
|                   |                                                                  |         | Condition     | Comment                                                             |                                             |        |                                                                                          |
| 7.6B.3.3_1.2      | Out-of-band blocking for EN-DC within FR1 (4 CCs)                | Rel-16  | C049          | UEs supporting intra-band contiguous EN-DC within FR1 with 4 DL CCs | E007                                        |        |                                                                                          |
| 7.6B.4.1          | Narrow band blocking for intra-band contiguous EN-DC (2 CCs)     | Rel-15  | C009a         | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs)                | E003a                                       |        |                                                                                          |
| 7.6B.4.2          | Narrow band blocking for intra-band non-contiguous EN-DC (2 CCs) | Rel-15  | C010a         | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs)            | E004a                                       |        | NOTE 5<br>Skip TC 7.6B.4.2 if UE supports SA and TS 38.521-1 TC 7.6.4 has been executed. |
| 7.6B.4.3          | Narrow band blocking for inter-band EN-DC within FR1 (1 NR CC)   | Rel-15  | C011c         | UEs supporting Inter-band EN-DC within FR1 with 1 NR DL CC          | E005c                                       |        | NOTE 5<br>Skip TC 7.6B.4.3 if UE supports SA and TS 38.521-1 TC 7.6.4 has been executed. |
| <b>7.6B.4.3_1</b> | <b>Narrow band blocking for EN-DC within FR1 (&gt;2 CCs)</b>     |         |               |                                                                     |                                             |        |                                                                                          |
| 7.6B.4.3_1.1      | Narrow band blocking for EN-DC within FR1 (3 CCs)                | Rel-15  | C045          | UEs supporting EN-DC within FR1 (3DL CCs)                           | E006                                        |        |                                                                                          |
| 7.6B.4.3_1.2      | Narrow band blocking for EN-DC within FR1 (4 CCs)                | Rel-16  | C046          | UEs supporting EN-DC within FR1 (4DL CCs)                           | E007                                        |        |                                                                                          |
| 7.6B.4.3_1.3      | Narrow band blocking for EN-DC within FR1 (5 CCs)                | Rel-16  | C047          | UEs supporting EN-DC within FR1 (5DL CCs)                           | E008                                        |        | Skip TC 7.6B.4.3_1.3 if UE supports SA and TS 38.521-1 TC 7.6A.4.3 has been executed.    |
| <b>7.7B</b>       | <b>Spurious response for DC</b>                                  |         |               |                                                                     |                                             |        |                                                                                          |
| 7.7B.1            | Spurious Response for intra-band contiguous EN-DC (2 CCs)        | Rel-15  | C009a         | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs)                | E003a                                       |        |                                                                                          |
| 7.7B.2            | Spurious Response for intra-band non-contiguous EN-DC (2 CCs)    | Rel-15  | C010a         | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs)            | E004a                                       |        | NOTE 5<br>Skip TC 7.7B.2 if UE supports SA and TS 38.521-1 TC 7.7 has been executed.     |
| 7.7B.3            | Spurious Response for inter-band EN-DC within FR1 (2 CCs)        | Rel-15  | C011a         | UEs supporting Inter-band EN-DC within FR1 (2DL CCs)                | E005a                                       |        |                                                                                          |
| <b>7.7B.3_1</b>   | <b>Spurious Response for EN-DC within FR1 (&gt;2 CCs)</b>        |         |               |                                                                     |                                             |        |                                                                                          |

| Clause            | TC Title                                                             | Release | Applicability |                                                                     | Tested Bands/CA/DC-Configurations Selection | Branch | Additional Information                                                                   |
|-------------------|----------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------|---------------------------------------------|--------|------------------------------------------------------------------------------------------|
|                   |                                                                      |         | Condition     | Comment                                                             |                                             |        |                                                                                          |
| 7.7B.3_1.1        | Spurious Response for EN-DC within FR1 (3 CCs)                       | Rel-15  | C048          | UEs supporting intra-band contiguous EN-DC within FR1 with 3 DL CCs | E006                                        |        |                                                                                          |
| 7.7B.3_1.2        | Spurious Response for EN-DC within FR1 (4 CCs)                       | Rel-16  | C049          | UEs supporting intra-band contiguous EN-DC within FR1 with 4 DL CCs | E007                                        |        |                                                                                          |
| <b>7.8B</b>       | <b>Intermodulation characteristics for DC</b>                        |         |               |                                                                     |                                             |        |                                                                                          |
| 7.8B.2.1          | Wideband Intermodulation for intra-band contiguous EN-DC (2 CCs)     | Rel-15  | C009a         | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs)                | E003a                                       |        | NOTE 1                                                                                   |
| 7.8B.2.2          | Wideband Intermodulation for intra-band non-contiguous EN-DC (2 CCs) | Rel-15  | C010a         | UEs supporting Intra-Band non-contiguous EN-DC (2DL CCs)            | E004a                                       |        | NOTE 5<br>Skip TC 7.8B.2.2 if UE supports SA and TS 38.521-1 TC 7.8.2 has been executed. |
| 7.8B.2.3          | Wideband Intermodulation for inter-band EN-DC within FR1 (2 CCs)     | Rel-15  | C011a         | UEs supporting inter-band EN-DC within FR1 (2DL CCs)                | E005c                                       |        | NOTE 5<br>Skip TC 7.8B.2.3 if UE supports SA and TS 38.521-1 TC 7.8.2 has been executed. |
| <b>7.8B.2.3_1</b> | <b>Wideband Intermodulation for EN-DC within FR1 (&gt;2 CCs)</b>     |         |               |                                                                     |                                             |        |                                                                                          |
| 7.8B.2.3_1.1      | Wideband Intermodulation for EN-DC within FR1 (3 CCs)                | Rel-15  | C045          | UEs supporting EN-DC within FR1 (3DL CCs)                           | E006                                        |        |                                                                                          |
| 7.8B.2.3_1.2      | Wideband Intermodulation for EN-DC within FR1 (4 CCs)                | Rel-15  | C046          | UEs supporting EN-DC within FR1 (4DL CCs)                           | E007                                        |        |                                                                                          |
| 7.8B.2.3_1.3      | Wideband Intermodulation for EN-DC within FR1 (5 CCs)                | Rel-15  | FFS           | FFS                                                                 | FFS                                         |        | NOTE 1                                                                                   |
| <b>7.9B</b>       | <b>Spurious emissions for DC</b>                                     |         |               |                                                                     |                                             |        |                                                                                          |
| 7.9B.1            | Spurious Emissions for intra-band contiguous EN-DC (2 CCs)           | Rel-15  | C009a         | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs)                | E003a                                       |        | NOTE 5<br>Skip TC 7.9B.1 if UE supports SA and TS 38.521-1 TC 7.9 has been executed.     |
| 7.9B.2            | Spurious Emissions for intra-band non-contiguous EN-DC (2 CCs)       | Rel-15  | C010a         | UEs supporting Intra-Band non-contiguous EN-DC (2DL CCs)            | E004a                                       |        | NOTE 5<br>Skip TC 7.9B.2 if UE supports SA and TS 38.521-1 TC 7.9 has been executed.     |

| Clause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | TC Title                                                        | Release | Applicability |                                                                                                  | Tested Bands/CA/DC-Configurations Selection | Branch                            | Additional Information                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                 |         | Condition     | Comment                                                                                          |                                             |                                   |                                                                                      |
| 7.9B.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Spurious Emissions for inter-band EN-DC within FR1 (1 NR CC)    | Rel-15  | C011c         | UEs supporting inter-band EN-DC within FR1 with 1 NR DL CC                                       | E005c                                       |                                   | NOTE 5<br>Skip TC 7.9B.3 if UE supports SA and TS 38.521-1 TC 7.9 has been executed. |
| <b>7.9B.3_1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Spurious Emissions for EN-DC within FR1 (&gt;2 CCs)</b>      |         |               |                                                                                                  |                                             |                                   |                                                                                      |
| 7.9B.3_1.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Spurious Emissions for EN-DC within FR1 (3 CCs)                 | Rel-15  | C048          | UEs supporting EN-DC within FR1 with 1 LTE DL CC and 2 inter-band NR DL CCs with DL-only NR band | E006                                        |                                   |                                                                                      |
| 7.9B.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Spurious Emissions for inter-band EN-DC including FR2 (1 NR CC) | Rel-15  | C012a         | UEs supporting Inter-band including FR2 with 1 NR DL CC                                          | E010a                                       | PC1<br>PC3<br>PC5<br>PC7 (NOTE 1) | NOTE5<br>Skip TC 7.9B.4 if UE supports SA and TS 38.521-2 TC 7.9 has been executed.  |
| <p>NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.521-3.</p> <p>NOTE 2: Void.</p> <p>NOTE 3: Void.</p> <p>NOTE 4: Void.</p> <p>NOTE 5: Test only one EN-DC combination per 5G NR band as LTE anchor agnostic approach is applied.</p> <p>NOTE 6: Uplink configurations CA_nA-nB, DC_A_nB, DC_B_nA, SUL_A-nD and SUL_B-nC can be noted as same UL CA configuration, where band nC and nD are the corresponding SUL bands with same UL frequency range of band (n)A and (n)B</p> |                                                                 |         |               |                                                                                                  |                                             |                                   |                                                                                      |

Table 4.1.3-1a: Void

Table 4.1.3-1b: Void

Table 4.1.3-1c: Void

4.1.4 Performance conformance test cases

Table 4.1.4-1: Applicability of performance test cases, ref. TS 38.521-4 [4]

| Clause      | TC Title                                                                                                                            | Release | Applicability |                                                                                                                                    | Tested Bands Selection | Additional Information | Branch | Subtest Selection Criteria |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------|--------|----------------------------|
|             |                                                                                                                                     |         | Condition     | Comment                                                                                                                            |                        |                        |        |                            |
| <b>5</b>    | <b>Demodulation performance requirements (Conducted requirements)</b>                                                               |         |               |                                                                                                                                    |                        |                        |        |                            |
| <b>5.2</b>  | <b>PDSCH demodulation requirements</b>                                                                                              |         |               |                                                                                                                                    |                        |                        |        |                            |
| 5.2.1.1.1   | 1Rx FDD FR1 PDSCH performance for RedCap                                                                                            | Rel-17  | C177a         | RedCap UEs supporting 5GS FDD FR1 and 1Rx UE capability                                                                            | D008                   |                        |        | Subtest 1-4: F023          |
| 5.2.1.1.2   | 1Rx FDD FR1 PDSCH performance for eRedCap                                                                                           | Rel-18  | TBD           | eRedCap UEs supporting 5GS FDD FR1 and 1Rx UE capability                                                                           | TBD                    | NOTE 1                 |        |                            |
| 5.2.1.2.1   | 1Rx TDD FR1 PDSCH performance for RedCap                                                                                            | Rel-17  | C177c         | RedCap UEs supporting 5GS TDD FR1 and 1Rx UE capability                                                                            | D009                   |                        |        | Subtest 1-4: F023          |
| 5.2.1.2.2   | 1Rx TDD FR1 PDSCH performance for eRedCap                                                                                           | Rel-18  | TBD           | eRedCap UEs supporting 5GS TDD FR1 and 1Rx UE capability                                                                           | TBD                    | NOTE 1                 |        |                            |
| 5.2.2.1.1_1 | 2Rx FDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                              | D008<br>D029           |                        |        | Subtest 1-3: F023          |
| 5.2.2.1.1_2 | 2Rx FDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with enhanced receiver type 1 for both SA and NSA                           | Rel-15  | C015x         | UEs supporting 5GS FDD FR1 and Enhanced Receiver Type 1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008<br>D029           |                        |        |                            |
| 5.2.2.1.1_3 | 2Rx FDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with baseline receiver for DL1024QAM for both SA and NSA                    | Rel-17  | C200          | UEs supporting 5GS FDD FR1 and DL1024QAM and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                | D008<br>D029           |                        |        |                            |
| 5.2.2.1.1_4 | 2Rx FDD FR1 PDSCH mapping Type A performance – 2x2 MIMO with enhanced DMRS for both SA and NSA                                      | Rel-18  | C341          | UEs supporting 5GS FDD FR1 and Rel-18 enhanced DMRS and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability     | D008<br>D029           |                        |        |                            |
| 5.2.2.1.2_1 | 2Rx FDD FR1 PDSCH mapping Type A and CSI-RS overlapped with PDSCH performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                              | D008<br>D029           |                        |        |                            |

| Clause      | TC Title                                                                                                                          | Release | Applicability |                                                                                                                                                                                                                                                      | Tested Bands Selection | Additional Information                                          | Branch | Subtest Selection Criteria |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------|--------|----------------------------|
|             |                                                                                                                                   |         | Condition     | Comment                                                                                                                                                                                                                                              |                        |                                                                 |        |                            |
| 5.2.2.1.3_1 | 2Rx FDD FR1 PDSCH mapping Type B performance - 2x2 MIMO with baseline receiver for both SA and NSA                                | Rel-15  | C015b         | UEs supporting 5GS FDD FR1 and PDSCH mapping Type B and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                                                                       | D008<br>D029           |                                                                 |        |                            |
| 5.2.2.1.4_1 | 2Rx FDD FR1 PDSCH Mapping Type A and LTE-NR coexistence performance - 4x2 MIMO with baseline receiver for both SA and NSA         | Rel-15  | C015y         | UEs supporting 5GS FDD FR1 and receiving PDSCH with resource mapping that excludes the REs determined by the higher layer configuration LTE-carrier configuring common RS and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008<br>D029           | Subtest 1-1 execution not necessary if subtest 1-2 is executed. |        | Subtest 1-2: F022          |
| 5.2.2.1.5_1 | 2Rx FDD FR1 PDSCH 0.001% BLER performance - 1x2 MIMO with baseline receiver for both SA and NSA                                   | Rel-16  | C074          | UEs supporting 5GS FDD FR1 and alternative 64QAM MCS table for PDSCH and CQI table with target BLER of $10^{-5}$ and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                          | D008<br>D029           |                                                                 |        |                            |
| 5.2.2.1.6_1 | 2Rx FDD FR1 PDSCH repetitions over multiple slots performance - 2x2 MIMO with baseline receiver for both SA and NSA               | Rel-16  | C120          | UEs supporting 5GS FDD FR1 and aggregationFactorDL > 1 for PDSCH repetition multislots and alternative 64QAM MCS table for PDSCH and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                          | D008<br>D029           |                                                                 |        |                            |
| 5.2.2.1.7_1 | 2Rx FDD FR1 PDSCH Mapping Type B and UE processing capability 2 performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-16  | C116          | UEs supporting 5GS FDD FR1 and PDSCH processing capability 2 and PDSCH mapping type B and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                                     | D008<br>D029           |                                                                 |        |                            |

| Clause       | TC Title                                                                                            | Release | Applicability |                                                                                                                                                                                  | Tested Bands Selection | Additional Information                                   | Branch | Subtest Selection Criteria |
|--------------|-----------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------------------------|--------|----------------------------|
|              |                                                                                                     |         | Condition     | Comment                                                                                                                                                                          |                        |                                                          |        |                            |
| 5.2.2.1.8_1  | 2Rx FDD FR1 PDSCH pre-emption performance - 2x2 MIMO with baseline receiver for both SA and NSA     | Rel-16  | C121          | UEs supporting 5GS FDD FR1 and PDSCH pre-emption indication and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                           | D008<br>D029           |                                                          |        |                            |
| 5.2.2.1.9_1  | 2Rx FDD FR1 HST-SFN performance - 2x2 MIMO with baseline receiver for both SA and NSA               | Rel-15  | C099          | UEs supporting 5GS FDD FR1 and enhanced demodulation processing for HST-SFN joint transmission scheme and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008<br>D029           |                                                          |        |                            |
| 5.2.2.1.10_1 | 2Rx FDD FR1 HST-DPS performance - 2x2 MIMO with baseline receiver for both SA and NSA               | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                            | D008<br>D029           |                                                          |        | Subtest 1-2: F050          |
| 5.2.2.1.11_1 | 2Rx FDD FR1 PDSCH Single-DCI based SDM scheme performance - 2x2 MIMO for both SA and NSA            | Rel-16  | C070          | UEs supporting 5GS FDD FR1 and single DCI based spatial division multiplexing scheme and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                  | D008<br>D029           |                                                          |        |                            |
| 5.2.2.1.12_1 | 2Rx FDD FR1 PDSCH Multiple-DCI based transmission scheme performance - 2x2 MIMO for both SA and NSA | Rel-16  | C113          | UEs supporting 5GS FDD FR1 and multi-DCI based multi-TRP and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                              | D008<br>D029           |                                                          |        |                            |
| 5.2.2.1.13_1 | 2Rx FDD FR1 PDSCH Single-DCI based FDM scheme A performance - 2x2 MIMO for both SA and NSA          | Rel-16  | C114          | UEs supporting 5GS FDD FR1 and single DCI based FDMSchemeA and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                            | D008<br>D029           |                                                          |        |                            |
| 5.2.2.1.14_1 | 2Rx FDD FR1 PDSCH Single-DCI based Inter-slot TDM scheme performance - 2x2 MIMO for both SA and NSA | Rel-16  | C115          | UEs supporting 5GS FDD FR1 and single-DCI based inter-slot TDM and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                        | D008<br>D029           | Test execution not necessary if 5.2.2.1.6_1 is executed. |        |                            |

| Clause       | TC Title                                                                                                                                | Release        | Applicability |                                                                                                                                                                | Tested Bands Selection | Additional Information                                          | Branch | Subtest Selection Criteria             |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------|--------|----------------------------------------|
|              |                                                                                                                                         |                | Condition     | Comment                                                                                                                                                        |                        |                                                                 |        |                                        |
| 5.2.2.1.15_1 | 2Rx FDD FR1 PDSCH with inter-cell interference - 2x2 MIMO for both SA and NSA                                                           | Rel-15, Rel-16 | C015d         | UEs supporting 5GS FDD FR1 and MMSE-IRC receiver and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                    | D008<br>D029           |                                                                 |        |                                        |
|              |                                                                                                                                         | Rel-17         | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                          | D008<br>D029           |                                                                 |        |                                        |
| 5.2.2.1.16_1 | 2Rx FDD FR1 for PDSCH with intra cell inter user interference performance for baseline MMSE-IRC receiver – 2x2 MIMO for both NSA and SA | Rel-15, Rel-16 | C015d         | UEs supporting 5GS FDD FR1 and MMSE-IRC receiver and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                    | D008<br>D029           |                                                                 |        |                                        |
|              |                                                                                                                                         | Rel-17         | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                          | D008<br>D029           |                                                                 |        |                                        |
| 5.2.2.1.16_2 | 2Rx FDD FR1 for PDSCH with intra cell inter user interference performance for Enhanced Receiver Type 2 – 2x2 MIMO for both NSA and SA   | Rel-18         | FFS           | FFS                                                                                                                                                            | D008<br>D029           | NOTE 1                                                          |        | FFS                                    |
| 5.2.2.1.17   | 2Rx FDD FR1 PDSCH performance for RedCap                                                                                                | Rel-17         | C177b         | RedCap UEs supporting 5GS FDD FR1 and 2Rx UE capability                                                                                                        | D008                   |                                                                 |        | Subtest 1-3: F023                      |
| 5.2.2.1.18_1 | 2Rx FDD FR1 for PDSCH CRS interference mitigation under NR-LTE coexistence scenario – 2x2 MIMO for both NSA and SA                      | Rel-17         | C353          | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability and supporting <i>CRS-IM-DSS-15kHzSCS-r17</i>                                   | D008                   |                                                                 |        |                                        |
| 5.2.2.1.19_1 | 2Rx FDD FR1 for PDSCH with inter cell CRS interference scenario – 4x2 MIMO for both NSA and SA                                          | Rel-17         | C015          | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability                                                                                 | D008                   | Subtest 1-1 execution not necessary if subtest 2-1 is executed. |        | Subtest 1-1: F026<br>Subtest 2-1: F025 |
| 5.2.2.1.20   | 2Rx FDD FR1 PDSCH HST-SFN Scheme A performance - 2x2 MIMO for both SA and NSA                                                           | Rel-17         | C245          | UEs supporting 5GS FDD FR1 and SFN scheme A for PDCCH scheduling SFN Scheme A PDSCH and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008<br>D029           |                                                                 |        |                                        |

| Clause      | TC Title                                                                                                                            | Release | Applicability |                                                                                                                                                                | Tested Bands Selection | Additional Information                                        | Branch | Subtest Selection Criteria |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------|--------|----------------------------|
|             |                                                                                                                                     |         | Condition     | Comment                                                                                                                                                        |                        |                                                               |        |                            |
| 5.2.2.1.21  | 2Rx FDD FR1 PDSCH HST-SFN Scheme B performance - 2x2 MIMO for both SA and NSA                                                       | Rel-17  | C246          | UEs supporting 5GS FDD FR1 and SFN scheme B for PDCCH scheduling SFN Scheme B PDSCH and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008<br>D029           | Test execution is not necessary if TC 5.2.2.1.20 is executed. |        |                            |
| 5.2.2.1.23  | 2Rx FDD FR1 PDSCH performance for eRedCap                                                                                           | Rel-18  | C372c         | eRedCap UEs supporting 5GS FDD FR1 and 2Rx UE capability                                                                                                       | D008                   |                                                               |        |                            |
| 5.2.2.2.1_1 | 2Rx TDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                          | D009<br>D010<br>D029   |                                                               |        | Subtest 1-3: F023          |
| 5.2.2.2.1_2 | 2Rx TDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with enhanced receiver type 1 for both SA and NSA                           | Rel-15  | C016x         | UEs supporting 5GS TDD FR1 and Enhanced Receiver Type 1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                             | D010<br>D029           |                                                               |        |                            |
| 5.2.2.2.1_3 | 2Rx TDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with baseline receiver for DL1024QAM for both SA and NSA                    | Rel-17  | C201          | UEs supporting 5GS TDD FR1 and DL 1024QAM and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                           | D010<br>D029           |                                                               |        |                            |
| 5.2.2.2.1_4 | 2Rx TDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with enhanced DMRS for both SA and NSA                                      | Rel-18  | C370          | UEs supporting 5GS TDD FR1 and Rel-18 enhanced DMRS and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                 | D008<br>D029           |                                                               |        |                            |
| 5.2.2.2.2_1 | 2Rx TDD FR1 PDSCH mapping Type A and CSI-RS overlapped with PDSCH performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                          | D010<br>D029           |                                                               |        |                            |
| 5.2.2.2.3_1 | 2Rx TDD FR1 PDSCH mapping Type B performance - 2x2 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C016b         | UEs supporting 5GS TDD FR1 and PDSCH mapping Type B and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                 | D010<br>D029           |                                                               |        |                            |

| Clause      | TC Title                                                                                                                          | Release | Applicability |                                                                                                                                                                                                                                                      | Tested Bands Selection | Additional Information                                          | Branch | Subtest Selection Criteria |
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|             |                                                                                                                                   |         | Condition     | Comment                                                                                                                                                                                                                                              |                        |                                                                 |        |                            |
| 5.2.2.2.4_1 | 2Rx TDD FR1 PDSCH Mapping Type A and LTE-NR coexistence performance - 4x2 MIMO with baseline receiver for both SA and NSA         | Rel-15  | C016y         | UEs supporting 5GS TDD FR1 and receiving PDSCH with resource mapping that excludes the REs determined by the higher layer configuration LTE-carrier configuring common RS and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability | D019<br>D029           | Subtest 1-1 execution not necessary if subtest 1-2 is executed. |        | Subtest 1-2: F022          |
| 5.2.2.2.5_1 | 2Rx TDD FR1 PDSCH 0.001% BLER performance - 1x2 MIMO with baseline receiver for both SA and NSA                                   | Rel-16  | C075          | UEs supporting 5GS TDD FR1 and alternative 64QAM MCS table for PDSCH and CQI table with target BLER of $10^{-5}$ and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                          | D009<br>D029           |                                                                 |        |                            |
| 5.2.2.2.6_1 | 2Rx TDD FR1 PDSCH repetitions over multiple slots performance - 2x2 MIMO with baseline receiver for both SA and NSA               | Rel-16  | C122          | UEs supporting 5GS TDD FR1 and aggregationFactorDL > 1 for PDSCH repetition multislots and alternative 64QAM MCS table for PDSCH and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                          | D010<br>D029           |                                                                 |        |                            |
| 5.2.2.2.7_1 | 2Rx TDD FR1 PDSCH Mapping Type B and UE processing capability 2 performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-16  | C117          | UEs supporting 5GS TDD FR1 and PDSCH processing capability 2 and PDSCH mapping type B and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                                                     | D010<br>D029           |                                                                 |        |                            |
| 5.2.2.2.8_1 | 2Rx TDD FR1 PDSCH pre-emption performance - 2x2 MIMO with baseline receiver for both SA and NSA                                   | Rel-16  | C123          | UEs supporting 5GS TDD FR1 and PDSCH pre-emption indication and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                                                                               | D010<br>D029           |                                                                 |        |                            |

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|              |                                                                                                                 |                   | Condition     | Comment                                                                                                                                                         |                        |                                                          |        |                            |
| 5.2.2.2.9_1  | 2Rx TDD FR1 HST-SFN performance - 2x2 MIMO with baseline receiver for both SA and NSA                           | Rel-15            | C099a         | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability                                                                                  | D010                   |                                                          |        |                            |
| 5.2.2.2.10_1 | 2Rx TDD FR1 HST-DPS performance - 2x2 MIMO with baseline receiver for both SA and NSA                           | Rel-15            | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                           | D010<br>D029           |                                                          |        | Subtest 1-2: F050          |
| 5.2.2.2.11_1 | 2Rx TDD FR1 PDSCH Single-DCI based SDM scheme performance - 2x2 MIMO for both SA and NSA                        | Rel-16            | C071          | UEs supporting 5GS TDD FR1 and single DCI based spatial division multiplexing scheme and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability | D009<br>D029           |                                                          |        |                            |
| 5.2.2.2.12_1 | 2Rx TDD FR1 PDSCH Multiple-DCI based transmission scheme performance - 2x2 MIMO for both SA and NSA             | Rel-16            | C113a         | UEs supporting 5GS TDD FR1 and multi-DCI based multi-TRP and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                             | D009<br>D029           |                                                          |        |                            |
| 5.2.2.2.13_1 | 2Rx TDD FR1 PDSCH Single-DCI based FDM scheme A performance - 2x2 MIMO for both SA and NSA                      | Rel-16            | C114a         | UEs supporting 5GS TDD FR1 and single DCI based FDMSchemeA and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                           | D009<br>D029           |                                                          |        |                            |
| 5.2.2.2.14_1 | 2Rx TDD FR1 PDSCH Single-DCI based Inter-slot TDM scheme performance - 2x2 MIMO for both SA and NSA             | Rel-16            | C115a         | UEs supporting 5GS TDD FR1 and single-DCI based inter-slot TDM and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                       | D009<br>D029           | Test execution not necessary if 5.2.2.2.6_1 is executed. |        |                            |
| 5.2.2.2.15_1 | 2Rx TDD FR1 PDSCH mapping type A performance on band with shared spectrum access – 2x2 MIMO for both NSA and SA | Rel-16            | C204          | UEs supporting 5GS TDD FR1 and NR-U                                                                                                                             | D025                   |                                                          |        |                            |
| 5.2.2.2.16_1 | 2Rx TDD FR1 for PDSCH with inter-cell interference performance – 2x2 MIMO for both NSA and SA                   | Rel-15,<br>Rel-16 | C016d         | UEs supporting 5GS TDD FR1 and MMSE-IRC receiver and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                     | D010<br>D029           |                                                          |        |                            |

| Clause       | TC Title                                                                                                           | Release        | Applicability |                                                                                                                                                                | Tested Bands Selection | Additional Information                                                                                                          | Branch | Subtest Selection Criteria                         |
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|              |                                                                                                                    |                | Condition     | Comment                                                                                                                                                        |                        |                                                                                                                                 |        |                                                    |
|              |                                                                                                                    | Rel-17         | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                          | D010<br>D029           |                                                                                                                                 |        |                                                    |
| 5.2.2.2.17_1 | 2Rx TDD FR1 for PDSCH with intra cell inter user interference performance – 2x2 MIMO for both NSA and SA           | Rel-15, Rel-16 | C016d         | UEs supporting 5GS TDD FR1 and MMSE-IRC receiver and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                    | D010<br>D029           |                                                                                                                                 |        |                                                    |
|              |                                                                                                                    | Rel-17         | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                          | D010<br>D029           |                                                                                                                                 |        |                                                    |
| 5.2.2.2.18   | 2Rx TDD FR1 PDSCH performance for RedCap                                                                           | Rel-17         | C177b         | RedCap UEs supporting 5GS TDD FR1 and 2Rx UE capability                                                                                                        | D009                   |                                                                                                                                 |        | Subtest 1-2: F023                                  |
| 5.2.2.2.19_1 | 2Rx TDD FR1 for PDSCH CRS interference mitigation under NR-LTE coexistence scenario – 4x2 MIMO for both NSA and SA | Rel-17         | C354          | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability and supporting <i>CRS-IM-DSS-15kHzSCS-r17</i>                                   | D009                   |                                                                                                                                 |        |                                                    |
| 5.2.2.2.20_1 | 2Rx TDD FR1 for PDSCH with inter cell CRS interference scenario – 4x2 MIMO for both NSA and SA                     | Rel-17         | C016          | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability                                                                                 | D009                   | Subtest 1-1 execution not necessary if subtest 2-1 is executed. Subtest 1-2 execution not necessary if subtest 2-2 is executed. |        | Subtests 1-1, 1-2: F028<br>Subtests 2-1, 2-2: F027 |
| 5.2.2.2.21   | 2Rx TDD FR1 PDSCH HST-SFN Scheme A performance - 2x2 MIMO for both SA and NSA                                      | Rel-17         | C247          | UEs supporting 5GS TDD FR1 and SFN scheme A for PDCCH scheduling SFN Scheme A PDSCH and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability | D010<br>D029           |                                                                                                                                 |        |                                                    |

| Clause      | TC Title                                                                                                                            | Release | Applicability |                                                                                                                                                                                                 | Tested Bands Selection | Additional Information                                          | Branch | Subtest Selection Criteria |
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|             |                                                                                                                                     |         | Condition     | Comment                                                                                                                                                                                         |                        |                                                                 |        |                            |
| 5.2.2.2.22  | 2Rx TDD FR1 PDSCH HST-SFN Scheme B performance - 2x2 MIMO for both SA and NSA                                                       | Rel-17  | C248          | UEs supporting 5GS TDD FR1 and SFN scheme B for PDCCH scheduling SFN Scheme B PDSCH and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                  | D010<br>D029           | Test execution is not necessary if TC 5.2.2.2.21 is executed.   |        |                            |
| 5.2.3.1.1_1 | 4Rx FDD FR1 PDSCH mapping Type A performance - 2x4 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                                                                                | D008                   |                                                                 |        | Subtest 1-3: F023          |
| 5.2.3.1.1_2 | 4Rx FDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                                                                                | D008                   |                                                                 |        |                            |
| 5.2.3.1.1_4 | 4Rx FDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with enhanced receiver type 1 for both SA and NSA                           | Rel-15  | C017x         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and Enhanced Receiver Type 1                                                                                                                   | D008                   |                                                                 |        |                            |
| 5.2.3.1.1_5 | 4Rx FDD FR1 PDSCH mapping Type A performance - 2x4 MIMO with baseline receiver for DL1024QAM for both SA and NSA                    | Rel-17  | C202          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and DL1024QAM                                                                                                                                  | D008                   |                                                                 |        |                            |
| 5.2.3.1.1_6 | 4Rx FDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with enhanced DMRS for both SA and NSA                                      | Rel-18  | C371          | UEs supporting 5GS FDD FR1 and Rel-18 enhanced DMRS and 4Rx antenna ports                                                                                                                       | D008<br>D029           |                                                                 |        |                            |
| 5.2.3.1.2_1 | 4Rx FDD FR1 PDSCH mapping Type A and CSI-RS overlapped with PDSCH performance - 4x4 MIMO with baseline receiver for both SA and NSA | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                                                                                | D008                   |                                                                 |        |                            |
| 5.2.3.1.3_1 | 4Rx FDD FR1 PDSCH mapping Type B performance - 2x4 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C017b         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and PDSCH mapping Type B                                                                                                                       | D008<br>D011           |                                                                 |        |                            |
| 5.2.3.1.4_1 | 4Rx FDD FR1 PDSCH Mapping Type A and LTE-NR coexistence performance - 4x4 MIMO with baseline receiver for both SA and NSA           | Rel-15  | C017y         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and receiving PDSCH with resource mapping that excludes the REs determined by the higher layer configuration LTE-carrier configuring common RS | D008                   | Subtest 1-1 execution not necessary if subtest 1-2 is executed. |        | Subtest 1-2: F022          |

| Clause       | TC Title                                                                                                                          | Release | Applicability |                                                                                                                                                        | Tested Bands Selection | Additional Information | Branch | Subtest Selection Criteria |
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|              |                                                                                                                                   |         | Condition     | Comment                                                                                                                                                |                        |                        |        |                            |
| 5.2.3.1.5_1  | 4Rx FDD FR1 PDSCH 0.001% BLER performance - 1x4 MIMO with baseline receiver for both SA and NSA                                   | Rel-16  | C076          | UEs supporting 5GS FDD FR1 and alternative 64QAM MCS table for PDSCH and CQI table with target BLER of $10^{-5}$ and 4Rx antenna ports                 | D008                   |                        |        |                            |
| 5.2.3.1.6_1  | 4Rx FDD FR1 PDSCH repetitions over multiple slots performance - 2x4 MIMO with baseline receiver for both SA and NSA               | Rel-16  | C124          | UEs supporting 5GS FDD FR1 and aggregationFactorDL > 1 for PDSCH repetition multislots and alternative 64QAM MCS table for PDSCH and 4Rx antenna ports | D008                   |                        |        |                            |
| 5.2.3.1.7_1  | 4Rx FDD FR1 PDSCH Mapping Type B and UE processing capability 2 performance - 2x4 MIMO with baseline receiver for both SA and NSA | Rel-16  | C118          | UEs supporting 5GS FDD FR1 and PDSCH processing capability 2 and PDSCH mapping type B and 4Rx antenna ports                                            | D008                   |                        |        |                            |
| 5.2.3.1.8_1  | 4Rx FDD FR1 PDSCH pre-emption performance - 2x4 MIMO with baseline receiver for both SA and NSA                                   | Rel-16  | C169          | UEs supporting 5GS FDD FR1 and PDSCH pre-emption indication and 4Rx antenna ports                                                                      | D008                   |                        |        |                            |
| 5.2.3.1.9_1  | 4Rx FDD FR1 HST-SFN performance - 2x4 MIMO with baseline receiver for both SA and NSA                                             | Rel-15  | C127          | UEs supporting 5GS FDD FR1 and enhanced demodulation processing for HST-SFN joint transmission scheme and 4Rx antenna ports                            | D008                   |                        |        |                            |
| 5.2.3.1.10_1 | 4Rx FDD FR1 HST-DPS performance - 2x4 MIMO with baseline receiver for both SA and NSA                                             | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                                       | D008                   |                        |        | Subtest 1-2: F050          |
| 5.2.3.1.11_1 | 4Rx FDD FR1 PDSCH Single-DCI based SDM scheme performance - 2x4 MIMO for both SA and NSA                                          | Rel-16  | C072          | UEs supporting 5GS FDD FR1 and single DCI based spatial division multiplexing scheme and 4Rx antenna ports                                             | D008                   |                        |        |                            |
| 5.2.3.1.12_1 | 4Rx FDD FR1 PDSCH Multiple-DCI based transmission scheme performance - 2x4 MIMO for both SA and NSA                               | Rel-16  | C113b         | UEs supporting 5GS FDD FR1 and multi-DCI based multi-TRP and 4Rx antenna ports                                                                         | D008                   |                        |        |                            |

| Clause       | TC Title                                                                                                                                | Release        | Applicability |                                                                                                | Tested Bands Selection | Additional Information                                          | Branch | Subtest Selection Criteria             |
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|              |                                                                                                                                         |                | Condition     | Comment                                                                                        |                        |                                                                 |        |                                        |
| 5.2.3.1.13_1 | 4Rx FDD FR1 PDSCH Single-DCI based FDM scheme A performance - 2x4 MIMO for both SA and NSA                                              | Rel-16         | C114b         | UEs supporting 5GS FDD FR1 and single DCI based FDMSchemeA and 4Rx antenna ports               | D008                   |                                                                 |        |                                        |
| 5.2.3.1.14_1 | 4Rx FDD FR1 PDSCH Single-DCI based Inter-slot TDM scheme performance - 2x4 MIMO for both SA and NSA                                     | Rel-16         | C115b         | UEs supporting 5GS FDD FR1 and single-DCI based inter-slot TDM and 4Rx antenna ports           | D008                   | Test execution not necessary if 5.2.3.1.6_1 is executed.        |        |                                        |
| 5.2.3.1.15_1 | 4Rx FDD FR1 PDSCH with inter-cell interference - 2x4 MIMO for both SA and NSA                                                           | Rel-15, Rel-16 | C017d         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and MMSE-IRC receiver                         | D008                   |                                                                 |        |                                        |
|              |                                                                                                                                         | Rel-17         | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                               | D008                   |                                                                 |        |                                        |
| 5.2.3.1.16_1 | 4Rx FDD FR1 for PDSCH with intra cell inter user interference performance for baseline MMSE-IRC receiver – 2x4 MIMO for both NSA and SA | Rel-15, Rel-16 | C017d         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and MMSE-IRC receiver                         | D008                   |                                                                 |        |                                        |
|              |                                                                                                                                         | Rel-17         | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                               | D008                   |                                                                 |        |                                        |
| 5.2.3.1.16_2 | 4Rx FDD FR1 for PDSCH with intra cell inter user interference performance for baseline MMSE-IRC receiver – 4x4 MIMO for both NSA and SA | Rel-15, Rel-16 | C017d         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and MMSE-IRC receiver                         | D008                   |                                                                 |        |                                        |
|              |                                                                                                                                         | Rel-17         | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                               | D008                   |                                                                 |        |                                        |
| 5.2.3.1.16_3 | 4Rx FDD FR1 for PDSCH with intra cell inter user interference performance for Enhanced Receiver Type 2 – 2x4 MIMO for both NSA and SA   | Rel-18         | FFS           | FFS                                                                                            | D008                   | NOTE 1                                                          |        |                                        |
| 5.2.3.1.16_4 | 4Rx FDD FR1 for PDSCH with intra cell inter user interference performance for Enhanced Receiver Type 2 – 4x4 MIMO for both NSA and SA   | Rel-18         | FFS           | FFS                                                                                            | D008                   | NOTE 1                                                          |        |                                        |
| 5.2.3.1.17_1 | 4Rx FDD FR1 for PDSCH CRS interference mitigation under NR-LTE coexistence scenario – 2x4 MIMO for both NSA and SA                      | Rel-17         | C355          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and supporting <i>CRS-IM-DSS-15kHzSCS-r17</i> | D008                   |                                                                 |        |                                        |
| 5.2.3.1.18_1 | 4Rx FDD FR1 for PDSCH with inter cell CRS interference scenario – 4x4 MIMO for both NSA and SA                                          | Rel-17         | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                               | D008                   | Subtest 1-1 execution not necessary if subtest 2-1 is executed. |        | Subtest 1-1: F026<br>Subtest 2-1: F025 |

| Clause      | TC Title                                                                                                                            | Release | Applicability |                                                                                                                                                                                                 | Tested Bands Selection | Additional Information                                          | Branch | Subtest Selection Criteria |
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|             |                                                                                                                                     |         | Condition     | Comment                                                                                                                                                                                         |                        |                                                                 |        |                            |
| 5.2.3.1.19  | 4Rx FDD FR1 PDSCH HST-SFN Scheme A performance - 2x4 MIMO for both SA and NSA                                                       | Rel-17  | C249          | UEs supporting 5GS FDD FR1 and SFN scheme A for PDCCH scheduling SFN Scheme A PDSCH, and 4Rx antenna ports                                                                                      | D008                   |                                                                 |        |                            |
| 5.2.3.1.20  | 4Rx FDD FR1 PDSCH HST-SFN Scheme B performance - 2x4 MIMO for both SA and NSA                                                       | Rel-17  | C250          | UEs supporting 5GS FDD FR1 and SFN scheme B for PDCCH scheduling SFN Scheme B PDSCH, and 4Rx antenna ports                                                                                      | D008                   | Test execution is not necessary if TC 5.2.3.1.19 is executed.   |        |                            |
| 5.2.3.2.1_1 | 4Rx TDD FR1 PDSCH mapping Type A performance - 2x4 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                                                                                | D009<br>D010           |                                                                 |        | Subtest 1-3: F023          |
| 5.2.3.2.1_2 | 4Rx TDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                                                                                | D010                   |                                                                 |        |                            |
| 5.2.3.2.1_4 | 4Rx TDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with enhanced receiver type 1 for both SA and NSA                           | Rel-15  | C019x         | UEs supporting 5GS TDD FR1 and Enhanced Receiver Type 1 and 4Rx antenna ports                                                                                                                   | D010                   |                                                                 |        |                            |
| 5.2.3.2.1_5 | 4Rx TDD FR1 PDSCH mapping Type A performance - 2x4 MIMO with baseline receiver for DL1024QAM for both SA and NSA                    | Rel-17  | C203          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and DL 1024QAM                                                                                                                                 | D010                   |                                                                 |        |                            |
| 5.2.3.2.1_6 | 4Rx TDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with enhanced DMRS for both SA and NSA                                      | Rel-18  | C390          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and Rel-18 enhanced DMRS                                                                                                                       | D010                   |                                                                 |        |                            |
| 5.2.3.2.2_1 | 4Rx TDD FR1 PDSCH mapping Type A and CSI-RS overlapped with PDSCH performance - 2x4 MIMO with baseline receiver for both SA and NSA | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                                                                                | D009<br>D010           |                                                                 |        |                            |
| 5.2.3.2.3_1 | 4Rx TDD FR1 PDSCH mapping Type B performance - 2x4 MIMO with baseline receiver for both SA and NSA                                  | Rel-15  | C019b         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and PDSCH mapping Type B                                                                                                                       | D009<br>D011           |                                                                 |        |                            |
| 5.2.3.2.4_1 | 4Rx TDD FR1 PDSCH Mapping Type A and LTE-NR coexistence performance - 4x4 MIMO with baseline receiver for both SA and NSA           | Rel-15  | C017z         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and receiving PDSCH with resource mapping that excludes the REs determined by the higher layer configuration LTE-carrier configuring common RS | D009                   | Subtest 1-1 execution not necessary if subtest 1-2 is executed. |        | Subtest 1-2: F022          |

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|              |                                                                                                                                   |         | Condition     | Comment                                                                                                                                                |                        |                        |        |                            |
| 5.2.3.2.5_1  | 4Rx TDD FR1 PDSCH 0.001% BLER performance - 1x4 MIMO with baseline receiver for both SA and NSA                                   | Rel-16  | C077          | UEs supporting 5GS TDD FR1 and alternative 64QAM MCS table for PDSCH and CQI table with target BLER of $10^{-5}$ and 4Rx antenna ports                 | D009                   |                        |        |                            |
| 5.2.3.2.6_1  | 4Rx TDD FR1 PDSCH repetitions over multiple slots performance - 2x4 MIMO with baseline receiver for both SA and NSA               | Rel-16  | C125          | UEs supporting 5GS TDD FR1 and aggregationFactorDL > 1 for PDSCH repetition multislots and alternative 64QAM MCS table for PDSCH and 4Rx antenna ports | D010                   |                        |        |                            |
| 5.2.3.2.7_1  | 4Rx TDD FR1 PDSCH Mapping Type B and UE processing capability 2 performance - 2x4 MIMO with baseline receiver for both SA and NSA | Rel-16  | C119          | UEs supporting 5GS TDD FR1 and PDSCH processing capability 2 and PDSCH mapping type B and 4Rx antenna ports                                            | D010                   |                        |        |                            |
| 5.2.3.2.8_1  | 4Rx TDD FR1 PDSCH pre-emption performance - 2x4 MIMO with baseline receiver for both SA and NSA                                   | Rel-16  | C170          | UEs supporting 5GS TDD FR1 and PDSCH pre-emption indication and 4Rx antenna ports                                                                      | D010                   |                        |        |                            |
| 5.2.3.2.9_1  | 4Rx TDD FR1 HST-SFN performance - 2x4 MIMO with baseline receiver for both SA and NSA                                             | Rel-15  | C019y         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and enhanced demodulation processing for HST-SFN joint transmission scheme                            | D010<br>D011           |                        |        |                            |
| 5.2.3.2.10_1 | 4Rx TDD FR1 HST DPS performance - 2x4 MIMO with baseline receiver for both SA and NSA                                             | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                                       | D010<br>D011           |                        |        | Subtest 1-2: F050          |
| 5.2.3.2.11_1 | 4Rx TDD FR1 PDSCH Single-DCI based SDM scheme performance - 2x4 MIMO for both SA and NSA                                          | Rel-16  | C073          | UEs supporting 5GS TDD FR1 and single DCI based spatial division multiplexing scheme and 4Rx antenna ports                                             | D009                   |                        |        |                            |
| 5.2.3.2.12_1 | 4Rx TDD FR1 PDSCH Multiple-DCI based transmission scheme performance - 2x4 MIMO for both SA and NSA                               | Rel-16  | C113c         | UEs supporting 5GS TDD FR1 and multi-DCI based multi-TRP and 4Rx antenna ports                                                                         | D009                   |                        |        |                            |
| 5.2.3.2.13_1 | 4Rx TDD FR1 PDSCH Single-DCI based FDM scheme A performance - 2x4 MIMO for both SA and NSA                                        | Rel-16  | C114c         | UEs supporting 5GS TDD FR1 and single DCI based FDMSchemeA and 4Rx antenna ports                                                                       | D009                   |                        |        |                            |

| Clause       | TC Title                                                                                                           | Release        | Applicability |                                                                                                            | Tested Bands Selection | Additional Information                                                                                                          | Branch | Subtest Selection Criteria                         |
|--------------|--------------------------------------------------------------------------------------------------------------------|----------------|---------------|------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------|
|              |                                                                                                                    |                | Condition     | Comment                                                                                                    |                        |                                                                                                                                 |        |                                                    |
| 5.2.3.2.14_1 | 4Rx TDD FR1 PDSCH Single-DCI based Inter-slot TDM scheme performance - 2x4 MIMO for both SA and NSA                | Rel-16         | C115c         | UEs supporting 5GS TDD FR1 and single-DCI based inter-slot TDM and 4Rx antenna ports                       | D009                   | Test execution not necessary if 5.2.3.2.6_1 is executed.                                                                        |        |                                                    |
| 5.2.3.2.15_1 | 4Rx TDD FR1 PDSCH mapping type A performance on band with shared spectrum access – 2x4 MIMO for both NSA and SA    | Rel-16         | C205          | UEs supporting 5GS FDD FR1 and NR-U                                                                        | D025                   |                                                                                                                                 |        |                                                    |
| 5.2.3.2.16_1 | 4Rx TDD FR1 for PDSCH with inter-cell interference performance – 2x4 MIMO for both NSA and SA                      | Rel-15, Rel-16 | C019d         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and MMSE-IRC receiver                                     | D010                   |                                                                                                                                 |        |                                                    |
|              |                                                                                                                    | Rel-17         | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                           | D010                   |                                                                                                                                 |        |                                                    |
| 5.2.3.2.17_1 | 4Rx TDD FR1 for PDSCH with intra cell inter user interference performance – 2x4 MIMO for both NSA and SA           | Rel-15, Rel-16 | C019d         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and MMSE-IRC receiver                                     | D010                   |                                                                                                                                 |        |                                                    |
|              |                                                                                                                    | Rel-17         | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                           | D010                   |                                                                                                                                 |        |                                                    |
| 5.2.3.2.17_2 | 4Rx TDD FR1 for PDSCH with intra cell inter user interference performance – 4x4 MIMO for both NSA and SA           | Rel-15, Rel-16 | C019d         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and MMSE-IRC receiver                                     | D010                   |                                                                                                                                 |        |                                                    |
|              |                                                                                                                    | Rel-17         | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                           | D010                   |                                                                                                                                 |        |                                                    |
| 5.2.3.2.18_1 | 4Rx TDD FR1 for PDSCH CRS interference mitigation under NR-LTE coexistence scenario – 4x4 MIMO for both NSA and SA | Rel-17         | C356          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and supporting <i>CRS-IM-DSS-15kHzSCS-r17</i>             | D009                   |                                                                                                                                 |        |                                                    |
| 5.2.3.2.19_1 | 4Rx TDD FR1 for PDSCH with inter cell CRS interference scenario – 4x4 MIMO for both NSA and SA                     | Rel-17         | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                           | D009                   | Subtest 1-1 execution not necessary if subtest 2-1 is executed. Subtest 1-2 execution not necessary if subtest 2-2 is executed. |        | Subtestss1-1, 1-2: F028<br>Subtests 2-1, 2-2: F027 |
| 5.2.3.2.20   | 4Rx TDD FR1 PDSCH HST-SFN Scheme A performance - 2x4 MIMO for both SA and NSA                                      | Rel-17         | C251          | UEs supporting 5GS TDD FR1 and SFN scheme A for PDCCH scheduling SFN Scheme A PDSCH, and 4Rx antenna ports | D010                   |                                                                                                                                 |        |                                                    |

| Clause     | TC Title                                                                                  | Release | Applicability |                                                                                                                                                                                           | Tested Bands Selection | Additional Information                                            | Branch | Subtest Selection Criteria |
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|            |                                                                                           |         | Condition     | Comment                                                                                                                                                                                   |                        |                                                                   |        |                            |
| 5.2.3.2.21 | 4Rx TDD FR1 PDSCH HST-SFN Scheme B performance - 2x4 MIMO for both SA and NSA             | Rel-17  | C252          | UEs supporting 5GS TDD FR1 and SFN scheme B for PDCCH scheduling SFN Scheme B PDSCH, and 4Rx antenna ports                                                                                | D010                   | Test execution is not necessary if TC 5.2.3.2.20 is executed.     |        |                            |
| 5.2A.2.1.1 | 2Rx Normal PDSCH Demodulation Performance for CA (2DL CA) for both SA and NSA             | Rel-15  | C261          | UEs supporting 5GS FR1 AND 2DL CA but not supporting 4Rx UE capability on any CCs                                                                                                         | E016                   | Test execution not necessary if 5.2A.2.1.2 is executed.           |        |                            |
| 5.2A.2.1.2 | 2Rx Normal PDSCH Demodulation Performance for CA (3DL CA) for both SA and NSA             | Rel-15  | C262          | UEs supporting 5GS FR1 AND 3DL CA but not supporting 4Rx UE capability on any CCs                                                                                                         | E017                   | Test execution not necessary if 5.2A.2.1.3 is executed.           |        |                            |
| 5.2A.2.1.3 | 2Rx Normal PDSCH Demodulation Performance for CA (4DL CA) for both SA and NSA             | Rel-15  | C263          | UEs supporting 5GS FR1 AND 4DL CA but not supporting 4Rx UE capability on any CCs                                                                                                         | E018                   |                                                                   |        |                            |
| 5.2A.2.2.1 | 2Rx PDSCH Demodulation Performance for CA with power imbalance (2DL CA)                   | Rel-15  | C261          | UEs supporting 5GS FR1 AND 2DL CA but not supporting 4Rx UE capability on any CCs                                                                                                         | E003a                  | Test execution not necessary if 5.2A.2.2.2 is executed.           |        |                            |
| 5.2A.2.2.2 | 2Rx PDSCH Demodulation Performance for CA with power imbalance (3DL CA)                   | Rel-15  | FFS           | UEs supporting 5GS FR1 AND 3DL CA but not supporting 4Rx UE capability on any CCs                                                                                                         | E033                   | NOTE 1<br>Test execution not necessary if 5.2A.2.2.3 is executed. |        |                            |
| 5.2A.2.2.3 | 2Rx PDSCH Demodulation Performance for CA with power imbalance (4DL CA)                   | Rel-15  | FFS           | UEs supporting 5GS FR1 and 4D LCA but not supporting 4Rx UE capability on any 4CCs                                                                                                        | E034                   | NOTE 1                                                            |        |                            |
| 5.2A.2.3   | 2Rx TDD FR1 PDSCH mapping type A performance of SCell on band with shared spectrum access | Rel-16  | C204          | UEs supporting 5GS TDD FR1 and NR-U                                                                                                                                                       | D025                   | NOTE 1                                                            |        |                            |
| 5.2A.2.4.1 | 2RX PDSCH Demodulation Performance for HST-SFN CA                                         | Rel-16  | C152b         | UEs supporting 5GS FR1 AND enhanced demodulation processing for carrier aggregation for HST-SFN joint transmission and 2Rx antenna ports, but not supporting 4Rx UE capability on any CCs | E016<br>D029           |                                                                   |        |                            |

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|             |                                                                                           |         | Condition     | Comment                                                                                                                                                                    |                        |                                                          |        |                            |
| 5.2A.2.5.1  | 2RX PDSCH Demodulation Performance for HST-DPS CA                                         | Rel-15  | C152a         | UEs supporting 5GS FR1 AND 2DL CA AND number of active TCI and 2Rx antenna ports, but not supporting 4Rx UE capability on any CCs                                          | E016<br>D029           |                                                          |        |                            |
| 5.2A.3.1.1  | 4Rx Normal PDSCH Demodulation Performance for CA (2DL CA)                                 | Rel-15  | C017g         | UEs supporting 5GS FR1 AND 2DL CA AND supporting 4Rx antenna ports on all CCs                                                                                              | E016                   | Test execution not necessary if 5.2A.3.1.2 is executed.  |        |                            |
| 5.2A.3.1.2  | 4Rx Normal PDSCH Demodulation Performance for CA (3DL CA)                                 | Rel-15  | C017h         | UEs supporting 5GS FR1 AND 3DL CA AND supporting 4Rx antenna ports on all CCs                                                                                              | E017                   | Test execution not necessary if 5.2A.3.1.3 is executed.  |        |                            |
| 5.2A.3.1.3  | 4Rx Normal PDSCH Demodulation Performance for CA (4DL CA)                                 | Rel-15  | C017i         | UEs supporting 5GS FR1 AND 4DL CA AND supporting 4Rx antenna ports on all CCs                                                                                              | E018                   |                                                          |        |                            |
| 5.2A.3.2.1  | 4Rx PDSCH Demodulation Performance for CA with power imbalance (2DL CA)                   | Rel-15  | C017g         | UEs supporting 5GS FR1 AND 2DL CA AND supporting 4Rx antenna ports on all CCs                                                                                              | E003a                  |                                                          |        |                            |
| 5.2A.3.3    | 4Rx TDD FR1 PDSCH mapping type A performance of SCell on band with shared spectrum access | Rel-16  | C205          | UEs supporting 5GS TDD FR1 and NR-U                                                                                                                                        | D025                   | NOTE 1                                                   |        |                            |
| 5.2A.3.4.1  | 4RX PDSCH Demodulation Performance for HST-SFN CA                                         | Rel-16  | C127a         | UEs supporting 5GS FR1 AND enhanced demodulation processing for carrier aggregation for HST-SFN joint transmission AND supporting 4Rx TDD and FDD UE capability on any CCs | E016                   |                                                          |        |                            |
| 5.2A.3.5.1  | 4RX PDSCH Demodulation Performance for HST-DPS CA                                         | Rel-15  | C154a         | UEs supporting 5GS FR1 AND 2DL CA AND number of active TCI AND supporting 4Rx TDD and FDD UE capability on any CCs                                                         | E016                   |                                                          |        |                            |
| 5.2A.3A.1.1 | 2Rx-4Rx Normal PDSCH Demodulation Performance for CA (2DL CA)                             | Rel-15  | C017g         | UEs supporting 5GS FR1 and 2DL CA AND supporting 4Rx UE capability on some of the CCs                                                                                      | E016                   | Test execution not necessary if 5.2A.3A.1.2 is executed. |        |                            |

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|             |                                                                   |         | Condition     | Comment                                                                                                                                     |                        |                                                          |        |                            |
| 5.2A.3A.1.2 | 2Rx-4Rx Normal PDSCH Demodulation Performance for CA (3DL CA)     | Rel-15  | C017h         | UEs supporting 5GS FR1 and 3DL CA AND supporting 4Rx UE capability on some of the CCs                                                       | E017                   | Test execution not necessary if 5.2A.3A.1.3 is executed. |        |                            |
| 5.2A.3A.1.3 | 2Rx-4Rx Normal PDSCH Demodulation Performance for CA (4DL CA)     | Rel-15  | C017i         | UEs supporting 5GS FR1 and 4DL CA AND supporting 4Rx UE capability on some of the CCs                                                       | E018                   |                                                          |        |                            |
| 5.3.1.1.1   | 1Rx FDD FR1 PDCCH performance for RedCap                          | Rel-17  | C177a         | RedCap UEs supporting 5GS FDD FR1 and 1Rx UE capability                                                                                     | D008                   |                                                          |        |                            |
| 5.3.1.2.1   | 1Rx TDD FR1 PDCCH performance for RedCap                          | Rel-17  | C177c         | RedCap UEs supporting 5GS TDD FR1 and 1Rx UE capability                                                                                     | D009                   |                                                          |        |                            |
| 5.3.2.1.1   | 2Rx FDD FR1 PDCCH 1 Tx antenna performance for both SA and NSA    | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                       | D008<br>D029           |                                                          |        |                            |
| 5.3.2.1.2   | 2Rx FDD FR1 PDCCH 2 Tx antenna performance for both SA and NSA    | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                       | D008<br>D029           |                                                          |        |                            |
| 5.3.2.1.3   | 2Rx FDD FR1 PDCCH 1 Tx antenna performance for power saving       | Rel-16  | C088          | UEs supporting 5GS FDD FR1 and Long DRX Cycle and DRX adaptation and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008<br>D029           |                                                          |        |                            |
| 5.3.2.1.4   | 2Rx FDD FR1 PDCCH performance for RedCap                          | Rel-17  | C177b         | RedCap UEs supporting 5GS FDD FR1 and 2Rx UE capability                                                                                     | D008                   |                                                          |        |                            |
| 5.3.2.1.5   | 2RX FDD Minimum requirements for PDCCH with intra-slot repetition | Rel-17  | C015e         | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                       | D008<br>D029           |                                                          |        |                            |
| 5.3.2.1.7   | 2RX FDD FR1 PDCCH antenna performance for 3 MHz channel bandwidth | Rel-18  | C343a         | UEs supporting 5GS FDD FR1 and 2Rx antenna ports and bandwidth of less than 5 MHz, but not supporting FDD bands with 4Rx UE capability      | D008a<br>D029          |                                                          |        |                            |

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|           |                                                                   |         | Condition     | Comment                                                                                                                                     |                        |                        |        |                            |
| 5.3.2.2.1 | 2Rx TDD FR1 PDCCH 1 Tx antenna performance for both SA and NSA    | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                       | D010<br>D029           |                        |        |                            |
| 5.3.2.2.2 | 2Rx TDD FR1 PDCCH 2 Tx antenna performance for both SA and NSA    | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                       | D010<br>D029           |                        |        |                            |
| 5.3.2.2.3 | 2Rx TDD FR1 PDCCH 1 Tx antenna performance for power saving       | Rel-16  | C089          | UEs supporting 5GS TDD FR1 and Long DRX Cycle and DRX adaptation and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability | D010<br>D029           |                        |        |                            |
| 5.3.2.2.4 | 2Rx TDD FR1 PDCCH performance for RedCap                          | Rel-17  | C177d         | RedCap UEs supporting 5GS TDD FR1 and 2Rx UE capability                                                                                     | D009                   |                        |        |                            |
| 5.3.2.2.5 | 2RX TDD Minimum requirements for PDCCH with intra-slot repetition | Rel-17  | C016e         | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                       | D009<br>D010<br>D029   |                        |        |                            |
| 5.3.3.1.1 | 4Rx FDD FR1 PDCCH 1 Tx antenna performance for both SA and NSA    | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                            | D008                   |                        |        |                            |
| 5.3.3.1.2 | 4Rx FDD FR1 PDCCH 2 Tx antenna performance for both SA and NSA    | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                            | D008                   |                        |        |                            |
| 5.3.3.1.3 | 4Rx FDD FR1 PDCCH 1 Tx antenna performance for power saving       | Rel-16  | C090          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and Long DRX Cycle and DRX adaptation                                                      | D008                   |                        |        |                            |
| 5.3.3.1.4 | 4RX FDD Minimum requirements for PDCCH with intra-slot repetition | Rel-17  | C017e         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                            | D008                   |                        |        |                            |
| 5.3.3.1.6 | 4RX FDD FR1 PDCCH antenna performance for 3 MHz channel bandwidth | Rel-18  | C343b         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and bandwidth of less than 5 MHz                                                           | D008a                  |                        |        |                            |
| 5.3.3.2.1 | 4Rx TDD FR1 PDCCH 1 Tx antenna performance for both SA and NSA    | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                            | D010                   |                        |        |                            |
| 5.3.3.2.2 | 4Rx TDD FR1 PDCCH 2 Tx antenna performance for both SA and NSA    | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                            | D010                   |                        |        |                            |
| 5.3.3.2.3 | 4Rx TDD FR1 PDCCH 1 Tx antenna performance for power saving       | Rel-16  | C091          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and Long DRX Cycle and DRX adaptation                                                      | D010                   |                        |        |                            |

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|-------------|-----------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------|------------------------|------------------------|--------|----------------------------|
|             |                                                                                   |         | Condition     | Comment                                                                                               |                        |                        |        |                            |
| 5.3.3.2.4   | 4RX TDD Minimum requirements for PDCCH with intra-slot repetition                 | Rel-17  | C019e         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                      | D010                   |                        |        |                            |
| 5.5.1       | FR1 Sustained downlink data rate performance for single carrier                   | Rel-15  | C001          | UEs supporting 5GS FDD FR1 or TDD FR1 (SA)                                                            | D001                   |                        |        |                            |
| 5.5.2       | FR1 Sustained downlink data rate performance for single carrier with DL1024QAM    | Rel-17  | C001r         | UEs supporting 5GS FDD FR1 or TDD FR1 (SA) and supporting DL 1024QAM                                  | D001                   |                        |        |                            |
| 5.5.3       | FR1 Sustained downlink data rate performance for RedCap                           | Rel-17  | C351a         | RedCap UEs supporting 5GS FDD FR1 or TDD FR1                                                          | D001                   |                        |        |                            |
| 5.5A.1.1    | FR1 SDR performance for CA (2DL CA)                                               | Rel-15  | C001e         | UEs supporting 5GS FDD FR1 or TDD FR1 (SA) and supporting 2DL CA                                      | E016                   |                        |        |                            |
| 5.5A.1.2    | FR1 SDR performance for CA (3DL CA)                                               | Rel-15  | C001i         | UEs supporting 5GS FDD FR1 or TDD FR1 (SA) and supporting 3DL CA                                      | E017                   |                        |        |                            |
| 5.5A.1.3    | FR1 SDR performance for CA (4DL CA)                                               | Rel-15  | C001j         | UEs supporting 5GS FDD FR1 or TDD FR1 (SA) and supporting 4DL CA                                      | E018                   |                        |        |                            |
| 5.5A.1.4    | FR1 SDR performance for CA (5DL CA)                                               | Rel-15  | C001k         | UEs supporting 5GS FDD FR1 or TDD FR1 (SA) and supporting 5DL CA                                      | E019                   |                        |        |                            |
| 5.6.2.1.1_1 | 2Rx FDD FR1 PDSCH performance with link adaptation – 2x2 MIMO for both SA and NSA | Rel-17  | C373          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008                   |                        |        |                            |
| 5.6.2.2.1_1 | 2Rx TDD FR1 PDSCH performance with link adaptation - 2x2 MIMO for both SA and NSA | Rel-17  | C374          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability | D010                   |                        |        |                            |
| 5.6.3.1.1_1 | 4Rx FDD FR1 PDSCH performance with link adaptation - 2x4 MIMO for both SA and NSA | Rel-17  | C375          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                      | D008                   |                        |        |                            |
| 5.6.3.2.1_1 | 4Rx TDD FR1 PDSCH performance with link adaptation - 2x4 MIMO for both SA and NSA | Rel-17  | C376          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                      | D010                   |                        |        |                            |
| <b>6</b>    | <b>CSI reporting requirements (Conducted requirements)</b>                        |         |               |                                                                                                       |                        |                        |        |                            |
| 6.2.1.1.1.1 | 1Rx FDD FR1 periodic CQI reporting under AWGN conditions for RedCap               | Rel-17  | C177a         | RedCap UEs supporting 5GS FDD FR1 and 1Rx UE capability                                               | D008                   |                        |        |                            |
| 6.2.1.1.1.2 | 1Rx FDD FR1 periodic CQI reporting under AWGN conditions for eRedCap              | Rel-18  | TBD           | eRedCap UEs supporting 5GS FDD FR1 and 1Rx UE capability                                              | TBD                    | NOTE 1                 |        |                            |

| Clause      | TC Title                                                                                  | Release | Applicability |                                                                                                                                                                                             | Tested Bands Selection | Additional Information | Branch | Subtest Selection Criteria |
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|             |                                                                                           |         | Condition     | Comment                                                                                                                                                                                     |                        |                        |        |                            |
| 6.2.1.1.2.1 | 1Rx FDD FR1 periodic wideband CQI reporting under fading conditions for RedCap            | Rel-17  | C177a         | RedCap UEs supporting 5GS FDD FR1 and 1Rx UE capability                                                                                                                                     | D008                   |                        |        |                            |
| 6.2.1.1.2.2 | 1Rx FDD FR1 periodic wideband CQI reporting under fading conditions for eRedCap           | Rel-18  | TBD           | eRedCap UEs supporting 5GS FDD FR1 and 1Rx UE capability                                                                                                                                    | D008                   | NOTE 1                 |        |                            |
| 6.2.1.2.1.1 | 1Rx TDD FR1 periodic CQI reporting under AWGN conditions for RedCap                       | Rel-17  | C177c         | RedCap UEs supporting 5GS TDD FR1 and 1Rx UE capability                                                                                                                                     | D009                   |                        |        |                            |
| 6.2.1.2.1.2 | 1Rx TDD FR1 periodic CQI reporting under AWGN conditions for eRedCap                      | Rel-18  | TBD           | eRedCap UEs supporting 5GS TDD FR1 and 1Rx UE capability                                                                                                                                    | D009                   | NOTE 1                 |        |                            |
| 6.2.1.2.2.1 | 1Rx TDD FR1 periodic wideband CQI reporting under fading conditions for RedCap            | Rel-17  | C177c         | RedCap UEs supporting 5GS TDD FR1 and 1Rx UE capability                                                                                                                                     | D009                   |                        |        |                            |
| 6.2.1.2.2.2 | 1Rx TDD FR1 periodic wideband CQI reporting under fading conditions for eRedCap           | Rel-18  | C372f         | eRedCap UE supporting 5GS TDD FR1 and 1Rx UE capability                                                                                                                                     | D009                   |                        |        |                            |
| 6.2.2.1.1.1 | 2Rx FDD FR1 periodic CQI reporting under AWGN conditions for both SA and NSA              | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                                       | D008<br>D029           |                        |        |                            |
| 6.2.2.1.1.2 | 2Rx FDD FR1 periodic CQI reporting with Table 3 under AWGN conditions for both SA and NSA | Rel-16  | C074          | UEs supporting 5GS FDD FR1 and alternative 64QAM MCS table for PDSCH and CQI table with target BLER of $10^{-5}$ and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008<br>D029           |                        |        |                            |
| 6.2.2.1.1.3 | 2Rx FDD FR1 periodic CQI reporting with Table 4 under AWGN conditions for both SA and NSA | Rel-17  | C200          | UEs supporting 5GS FDD FR1 and DL1024QAM and 2Rx UE capability, but not supporting FDD bands with 4Rx UE capability                                                                         | D008<br>D029           |                        |        |                            |
| 6.2.2.1.1.4 | 2Rx FDD FR1 periodic CQI reporting under AWGN conditions for RedCap for SA                | Rel-17  | C177b         | RedCap UEs supporting 5GS FDD FR1 and 2Rx UE capability                                                                                                                                     | D008                   |                        |        |                            |
| 6.2.2.1.1.5 | 2Rx FDD FR1 periodic CQI reporting under AWGN conditions for eRedCap for SA               | Rel-18  | C372d         | eRedCap UE supporting 5GS FDD FR1 and 2Rx UE capability                                                                                                                                     | D008                   |                        |        |                            |

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|             |                                                                                           |         | Condition     | Comment                                                                                                                                                                                     |                        |                        |        |                            |
| 6.2.2.1.2.1 | 2Rx FDD FR1 periodic wideband CQI reporting under fading conditions for both SA and NSA   | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                                       | D008<br>D029           |                        |        |                            |
| 6.2.2.1.2.2 | 2Rx FDD FR1 aperiodic subband CQI reporting under fading conditions for both SA and NSA   | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                                       | D008<br>D029           |                        |        |                            |
| 6.2.2.1.2.3 | 2Rx FDD FR1 Wideband CQI reporting with inter-cell interference for both SA and NSA       | Rel-15  | C015d         | UEs supporting 5GS FDD FR1 and MMSE-IRC receiver and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                 | D008<br>D029           |                        |        |                            |
| 6.2.2.1.2.4 | 2Rx FDD FR1 periodic wideband CQI reporting under fading conditions for RedCap            | Rel-17  | C177b         | RedCap UEs supporting 5GS FDD FR1 and 2Rx UE capability                                                                                                                                     | D008                   |                        |        |                            |
| 6.2.2.1.2.5 | 2Rx FDD FR1 periodic wideband CQI reporting under fading conditions for eRedCap           | Rel-18  | C372c         | eRedCap UEs supporting 5GS FDD FR1 and 2Rx UE capability                                                                                                                                    | D008                   |                        |        |                            |
| 6.2.2.2.1.1 | 2Rx TDD FR1 periodic CQI reporting under AWGN conditions for both SA and NSA              | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                                                       | D010<br>D029           |                        |        |                            |
| 6.2.2.2.1.2 | 2Rx TDD FR1 periodic CQI reporting with Table 3 under AWGN conditions for both SA and NSA | Rel-16  | C075          | UEs supporting 5GS TDD FR1 and alternative 64QAM MCS table for PDSCH and CQI table with target BLER of $10^{-5}$ and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability | D010<br>D029           |                        |        |                            |
| 6.2.2.2.1.4 | 2Rx TDD FR1 periodic CQI reporting with Table 4 under AWGN conditions for both SA and NSA | Rel-17  | C201          | UEs supporting 5GS TDD FR1 and DL 1024QAM and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability.                                                                       | D010<br>D029           |                        |        |                            |
| 6.2.2.2.1.5 | 2Rx TDD FR1 periodic CQI reporting under AWGN conditions for RedCap                       | Rel-17  | C177d         | RedCap UEs supporting 5GS TDD FR1 and 2Rx UE capability                                                                                                                                     | D009                   |                        |        |                            |

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| 6.2.2.2.1.6 | 2Rx TDD FR1 periodic CQI reporting under AWGN conditions for eRedCap                      | Rel-18  | C372h         | eRedCap UE without reduced baseband bandwidth supporting 5GS TDD FR1 and 2Rx UE capability                                             | D009                   |                        |        |                            |
| 6.2.2.2.2.1 | 2Rx TDD FR1 periodic wideband CQI reporting under fading conditions for both SA and NSA   | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                  | D010<br>D029           |                        |        |                            |
| 6.2.2.2.2.2 | 2Rx TDD FR1 aperiodic subband CQI reporting under fading conditions for both SA and NSA   | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                  | D010<br>D029           |                        |        |                            |
| 6.2.2.2.2.3 | 2Rx TDD FR1 Wideband CQI reporting with inter-cell interference for both SA and NSA       | Rel-15  | C016d         | UEs supporting 5GS TDD FR1 and MMSE-IRC receiver and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability            | D010<br>D029           |                        |        |                            |
| 6.2.3.1.1.1 | 4Rx FDD FR1 periodic CQI reporting under AWGN conditions for both SA and NSA              | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                       | D008                   |                        |        |                            |
| 6.2.2.2.2.4 | 2Rx TDD FR1 periodic wideband CQI reporting under fading conditions for RedCap            | Rel-17  | C177d         | RedCap UEs supporting 5GS TDD FR1 and 2Rx UE capability                                                                                | D009                   |                        |        |                            |
| 6.2.3.1.1.2 | 4Rx FDD FR1 periodic CQI reporting with Table 3 under AWGN conditions for both SA and NSA | Rel-16  | C076          | UEs supporting 5GS FDD FR1 and alternative 64QAM MCS table for PDSCH and CQI table with target BLER of $10^{-5}$ and 4Rx antenna ports | D008                   |                        |        |                            |
| 6.2.3.1.1.3 | 4Rx FDD FR1 periodic CQI reporting with Table 4 under AWGN conditions for both SA and NSA | Rel-17  | C202          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and DL1024QAM                                                                         | D008                   |                        |        |                            |
| 6.2.3.1.2.1 | 4Rx FDD FR1 periodic wideband CQI reporting under fading conditions for both SA and NSA   | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                       | D008                   |                        |        |                            |
| 6.2.3.1.2.2 | 4Rx FDD FR1 aperiodic subband CQI reporting under fading conditions for both SA and NSA   | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                       | D008                   |                        |        |                            |
| 6.2.3.1.2.3 | 4Rx FDD FR1 Wideband CQI reporting with inter-cell interference for both SA and NSA       | Rel-15  | C017d         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and MMSE-IRC receiver                                                                 | D008                   |                        |        |                            |

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| 6.2.3.2.1.1  | 4Rx TDD FR1 periodic CQI reporting under AWGN conditions for both SA and NSA                  | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                       | D010                   |                                                         |        |                            |
| 6.2.3.2.1.2  | 4Rx TDD FR1 periodic CQI reporting with Table 3 under AWGN conditions for both SA and NSA     | Rel-16  | C077          | UEs supporting 5GS TDD FR1 and alternative 64QAM MCS table for PDSCH and CQI table with target BLER of $10^{-5}$ and 4Rx antenna ports | D010                   |                                                         |        |                            |
| 6.2.3.2.1.4  | 4Rx TDD FR1 periodic CQI reporting with Table 4 under AWGN conditions for both SA and NSA     | Rel-17  | C203          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and DL 1024 QAM                                                                       | D010                   |                                                         |        |                            |
| 6.2.3.2.2.1  | 4Rx TDD FR1 periodic wideband CQI reporting under fading conditions for both SA and NSA       | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                       | D010                   |                                                         |        |                            |
| 6.2.3.2.2.2  | 4Rx TDD FR1 aperiodic subband CQI reporting under fading conditions for both SA and NSA       | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                       | D010                   |                                                         |        |                            |
| 6.2.3.2.2.3  | 4Rx TDD FR1 Wideband CQI reporting with inter-cell interference for both SA and NSA           | Rel-15  | C019d         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and MMSE-IRC receiver                                                                 | D010                   |                                                         |        |                            |
| 6.2A.3.1.1   | CQI reporting accuracy under AWGN conditions for CA (2DL CA)                                  | Rel-15  | C031          | UEs supporting 5GS FR1 and CA (2DL CA)                                                                                                 | E016                   | Test execution not necessary if 6.2A.3.1.2 is executed. |        |                            |
| 6.2A.3.1.1_1 | 2Rx FR1 CQI reporting under AWGN for Scell on band with shared spectrum access for CA (2DLCA) | Rel-16  | C204a         | UEs supporting 5GS TDD FR1 and NR-U and 2DL CA                                                                                         | D025                   |                                                         |        |                            |
| 6.2A.3.1.2   | CQI reporting accuracy under AWGN conditions for CA (3DL CA)                                  | Rel-15  | C033          | UEs supporting 5GS FR1 and CA (3DL CA)                                                                                                 | E017                   | Test execution not necessary if 6.2A.3.1.3 is executed. |        |                            |
| 6.2A.3.1.3   | CQI reporting accuracy under AWGN conditions for CA (4DL CA)                                  | Rel-15  | C036          | UEs supporting 5GS FR1 and CA (4DL CA)                                                                                                 | E018                   |                                                         |        |                            |
| 6.2A.4.1.1   | 4Rx FR1 CQI reporting under AWGN for Scell on band with shared spectrum access for CA (2DLCA) | Rel-16  | C204b         | UEs supporting 5GS TDD FR1 and NR-U and 2DL CA and 4Rx antenna ports                                                                   | D025                   |                                                         |        |                            |
| 6.3.1.1.1    | 1Rx FDD Single PMI with 4TX TypeI-SinglePanel Codebook for RedCap                             | Rel-17  | C177a         | RedCap UEs supporting 5GS FDD FR1 and 1Rx UE capability                                                                                | D008                   |                                                         |        |                            |
| 6.3.1.1.2    | 1Rx FDD Single PMI with 4TX TypeI-SinglePanel Codebook for eRedCap                            | Rel-18  | C372b         | eRedCap UE supporting 5GS FDD FR1 and 1Rx UE capability                                                                                | D008                   |                                                         |        |                            |

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| 6.3.1.2.1   | 1Rx TDD Single PMI with 4TX Typel-SinglePanel Codebook for RedCap                    | Rel-17  | C177c         | RedCap UEs supporting 5GS TDD FR1 and 1Rx UE capability                                                                                                                          | D009                   |                        |        |                            |
| 6.3.1.2.2   | 1Rx TDD Single PMI with 4TX Typel-SinglePanel Codebook for eRedCap                   | Rel-18  | C372f         | eRedCap UE supporting 5GS TDD FR1 and 1Rx UE capability                                                                                                                          | D009                   |                        |        |                            |
| 6.3.2.1.1   | 2Rx FDD FR1 Single PMI with 4TX Typel-SinglePanel codebook for both SA and NSA       | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                            | D008<br>D029           |                        |        |                            |
| 6.3.2.1.1_1 | 2Rx FDD FR1 Single PMI with 4Tx Typel-SinglePanel codebook for RedCap                | Rel-17  | C177b         | RedCap UEs supporting 5GS FDD FR1 and 2Rx UE capability                                                                                                                          | D008<br>D029           |                        |        |                            |
| 6.3.2.1.2   | 2Rx FDD FR1 Single PMI with 8TX Typel-SinglePanel codebook for both SA and NSA       | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                                                                            | D008<br>D029           |                        |        |                            |
| 6.3.2.1.3   | 2Rx FDD FR1 Multiple PMI with 16Tx Type I – SinglePanel Codebook for both SA and NSA | Rel-15  | C015f         | UEs supporting 5GS FDD FR1 and 2Rx antenna ports and 16Tx Type I single panel codebook, but not supporting FDD bands with 4Rx UE capability                                      | D008<br>D029           |                        |        |                            |
| 6.3.2.1.4   | 2Rx FDD FR1 Single PMI with 32Tx Type1 – SinglePanel Codebook for both SA and NSA    | Rel-15  | C015g         | UEs supporting 5GS FDD FR1 and 2Rx antenna ports and 32Tx Type I single panel codebook, but not supporting FDD bands with 4Rx UE capability                                      | D008<br>D029           |                        |        |                            |
| 6.3.2.1.5   | 2Rx FDD FR1 Multiple PMI with 16Tx Typell codebook for both SA and NSA               | Rel-15  | C015c         | UEs supporting 5GS FDD FR1 and supporting Type II codebook with at least 16 ports per CSI-RS resource and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability | D008<br>D029           |                        |        |                            |
| 6.3.2.1.6   | 2Rx FDD FR1 Multiple PMI with 16Tx Enhanced Typell codebook for both SA and NSA      | Rel-16  | C128          | UEs supporting 5GS FDD FR1 and Enhanced Type II codebook with at least 16 ports per CSI-RS resource and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability   | D008<br>D029           |                        |        |                            |

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| 6.3.2.1.7  | 2Rx FDD FR1 Single PMI with 8 ports Typel-SinglePanel Codebook for Single-DCI based transmission scheme for both SA and NSA | Rel-17  | C070          | UEs supporting 5GS FDD FR1 and single DCI based spatial division multiplexing scheme and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                  | D008<br>D029           | Note1                  |        |                            |
| 6.3.2.1.9  | 2Rx FDD FR1 Multiple PMI with 8 ports Enhanced Type II Codebook for CJT for both SA and NSA                                 | Rel-18  | C368          | UEs supporting 5GS FDD FR1 and eType-II codebook with refinement for multi-TRP CJT and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                    | D008<br>D029           |                        |        |                            |
| 6.3.2.1.10 | 2Rx FDD FR1 Single PMI with 4Tx Typel-SinglePanel codebook for eRedCap                                                      | Rel-18  | C372d         | eRedCap UE supporting 5GS FDD FR1 and 2Rx UE capability                                                                                                                          | D008                   |                        |        |                            |
| 6.3.2.2.1  | 2Rx TDD FR1 Single PMI with 4TX Typel-SinglePanel codebook for both SA and NSA                                              | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                                            | D010<br>D029           |                        |        |                            |
| 6.3.2.2.2  | 2Rx TDD FR1 Single PMI with 8TX Typel-SinglePanel codebook for both SA and NSA                                              | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                                                                            | D010<br>D029           |                        |        |                            |
| 6.3.2.2.3  | 2Rx TDD FR1 Multiple PMI with 16Tx Type1 - SinglePanel codebook for both SA and NSA                                         | Rel-15  | C016f         | UEs supporting 5GS TDD FR1 and 2Rx antenna ports and 16Tx Type I single panel codebook, but not supporting TDD bands with 4Rx UE capability                                      | D010<br>D029           |                        |        |                            |
| 6.3.2.2.4  | 2Rx TDD FR1 Single PMI with 32Tx Type1 - SinglePanel codebook for both SA and NSA                                           | Rel-15  | C016g         | UEs supporting 5GS TDD FR1 and 2Rx antenna ports and 32Tx Type I single panel codebook, but not supporting TDD bands with 4Rx UE capability                                      | D010<br>D029           |                        |        |                            |
| 6.3.2.2.5  | 2Rx TDD FR1 Multiple PMI with 16Tx TypeII codebook for both SA and NSA                                                      | Rel-15  | C016c         | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, and supporting Type II codebook with at least 16 ports per CSI-RS resource but not supporting TDD bands with 4Rx UE capability | D010<br>D029           |                        |        |                            |

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| 6.3.2.2.6  | 2Rx TDD FR1 Multiple PMI with 16Tx Enhanced TypeII codebook for both SA and NSA                                             | Rel-16  | C129          | UEs supporting 5GS TDD FR1 and Enhanced Type II codebook with at least 16 ports per CSI-RS resource and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability | D010<br>D029           |                        |        |                            |
| 6.3.2.2.7  | 2Rx TDD Single PMI with 4Tx TypeI-SinglePanel Codebook for RedCap                                                           | Rel-17  | C177b         | RedCap UEs supporting 5GS TDD FR1 and 2Rx UE capability                                                                                                                        | D009                   |                        |        |                            |
| 6.3.2.2.8  | 2Rx TDD FR1 Single PMI with 8 ports TypeI-SinglePanel Codebook for Single-DCI based transmission scheme for both SA and NSA | Rel-17  | C071          | UEs supporting 5GS TDD FR1 and single DCI based spatial division multiplexing scheme and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                | D010<br>D029           |                        |        |                            |
| 6.3.2.2.10 | 2Rx TDD Single PMI with 4Tx TypeI-SinglePanel Codebook for eRedCap                                                          | Rel-18  | C372h         | eRedCap UE supporting 5GS TDD FR1 and 2Rx UE capability                                                                                                                        | D009                   |                        |        |                            |
| 6.3.3.1.1  | 4Rx FDD FR1 Single PMI with 4Tx TypeI-SinglePanel codebook for both SA and NSA                                              | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                                                               | D008<br>D011           |                        |        |                            |
| 6.3.3.1.2  | 4Rx FDD FR1 Single PMI with 8Tx TypeI-SinglePanel codebook for both SA and NSA                                              | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                                                               | D008<br>D011           |                        |        |                            |
| 6.3.3.1.3  | 4Rx FDD FR1 Multiple PMI with 16Tx Type I – SinglePanel Codebook for both SA and NSA                                        | Rel-15  | C017k         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and 16Tx Type I single panel codebook                                                                                         | D008<br>D011           |                        |        |                            |
| 6.3.3.1.4  | 4Rx FDD FR1 Single PMI with 32Tx Type1 – SinglePanel Codebook for both SA and NSA                                           | Rel-15  | C017l         | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and 32Tx Type I single panel codebook                                                                                         | D008<br>D011           |                        |        |                            |
| 6.3.3.1.5  | 4Rx FDD FR1 Multiple PMI with 16Tx TypeII codebook for both SA and NSA                                                      | Rel-15  | C017c         | UEs supporting 5GS FDD FR1 and supporting Type II codebook with at least 16 ports per CSI-RS resource and 4Rx antenna ports                                                    | D008<br>D011           |                        |        |                            |

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| 6.3.3.1.6 | 4Rx FDD FR1 Multiple PMI with 16Tx Enhanced TypeII codebook for both SA and NSA                                             | Rel-16  | C130          | UEs supporting 5GS FDD FR1 and Enhanced Type II codebook with at least 16 ports per CSI-RS resource, and 4Rx antenna ports     | D008<br>D011           |                        |        |                            |
| 6.3.3.1.7 | 4Rx FDD FR1 Single PMI with 8 ports TypeI-SinglePanel Codebook for Single-DCI based transmission scheme for both SA and NSA | Rel-17  | C072          | UEs supporting 5GS FDD FR1 and single DCI based spatial division multiplexing scheme and 4Rx antenna ports                     | D008<br>D011           |                        |        |                            |
| 6.3.3.1.9 | 4Rx FDD FR1 Multiple PMI with 8 ports Enhanced Type II Codebook for CJT for both SA and NSA                                 | Rel-17  | C369          | UEs supporting 5GS FDD FR1 and eType-II codebook with refinement for multi-TRP CJT and 4Rx antenna ports and 4Rx antenna ports | D008<br>D011           |                        |        |                            |
| 6.3.3.2.1 | 4Rx TDD FR1 Single PMI with 4Tx TypeI-SinglePanel codebook for both SA and NSA                                              | Rel-15  | C019          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                               | D010<br>D011           |                        |        |                            |
| 6.3.3.2.2 | 4Rx TDD FR1 Single PMI with 8Tx TypeI-SinglePanel codebook for both SA and NSA                                              | Rel-15  | C019          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                               | D010<br>D011           |                        |        |                            |
| 6.3.3.2.3 | 4Rx TDD FR1 Multiple PMI with 16Tx Type1 - SinglePanel codebook for both SA and NSA                                         | Rel-15  | C019g         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and 16Tx Type I single panel codebook                                         | D010                   |                        |        |                            |
| 6.3.3.2.4 | 4Rx TDD FR1 Single PMI with 32Tx Type1 - SinglePanel codebook for both SA and NSA                                           | Rel-15  | C019h         | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and 32Tx Type I single panel codebook                                         | D010                   |                        |        |                            |
| 6.3.3.2.5 | 4Rx TDD FR1 Multiple PMI with 16Tx TypeII codebook for both SA and NSA                                                      | Rel-15  | C019c         | UEs supporting 5GS TDD FR1 and supporting Type II codebook with at least 16 ports per CSI-RS resource and 4Rx antenna ports    | D010                   |                        |        |                            |
| 6.3.3.2.6 | 4Rx TDD FR1 Multiple PMI with 16Tx Enhanced TypeII codebook for both SA and NSA                                             | Rel-16  | C131          | UEs supporting 5GS TDD FR1 and Enhanced Type II codebook with at least 16 ports per CSI-RS resource, and 4Rx antenna ports     | D010                   |                        |        |                            |

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| 6.3.3.2.7   | 4Rx TDD FR1 Single PMI with 8 ports TypeI-SinglePanel Codebook for Single-DCI based transmission scheme for both SA and NSA | Rel-17  | C073          | UEs supporting 5GS FDD FR1 and single DCI based spatial division multiplexing scheme and 4Rx antenna ports                       | D010                   |                        |            |                            |
| 6.4.2.1_1   | 2Rx FDD FR1 RI reporting for both SA and NSA                                                                                | Rel-15  | C015          | UEs supporting 5GS FDD FR1 and 2Rx antenna ports, but not supporting FDD bands with 4Rx UE capability                            | D008<br>D029           |                        |            |                            |
| 6.4.2.1.1   | 2Rx FDD FR1 RI reporting for RedCap                                                                                         | Rel-17  | C177b         | RedCap UEs supporting 5GS FDD FR1 and 2Rx UE capability                                                                          | D008                   |                        |            |                            |
| 6.4.2.2_1   | 2Rx TDD FR1 RI reporting for both SA and NSA                                                                                | Rel-15  | C016          | UEs supporting 5GS TDD FR1 and 2Rx antenna ports, but not supporting TDD bands with 4Rx UE capability                            | D010<br>D029           |                        |            |                            |
| 6.4.2.2.1   | 2Rx TDD FR1 RI reporting for RedCap                                                                                         | Rel-17  | C177d         | RedCap UEs supporting 5GS TDD FR1 and 2Rx UE capability                                                                          | D009                   |                        |            |                            |
| 6.4.3.1_1   | 4Rx FDD FR1 RI reporting for both SA and NSA                                                                                | Rel-15  | C017          | UEs supporting 5GS FDD FR1 and 4Rx antenna ports                                                                                 | D008<br>D011           |                        |            |                            |
| 6.4.3.2_1   | 4Rx TDD FR1 RI reporting for both SA and NSA                                                                                | Rel-15  | C019          | UEs supporting 5GS TDD FR1 and 4Rx antenna ports                                                                                 | D010<br>D011           |                        |            |                            |
| <b>7</b>    | <b>Demodulation performance requirements (Radiated requirements)</b>                                                        |         |               |                                                                                                                                  |                        |                        |            |                            |
| 7.2.2.2.1_1 | 2Rx TDD FR2 PDSCH mapping Type A performance - 2x2 MIMO with baseline receiver for SA and NSA                               | Rel-15  | C061          | UEs supporting 5GS TDD FR2                                                                                                       | D013<br>D014<br>D015   |                        | PC1<br>PC3 |                            |
| 7.2.2.2.1_2 | 2Rx TDD FR2 PDSCH mapping Type A performance - 2x2 MIMO with enhanced type 1 receiver for SA and NSA                        | Rel-15  | C062c         | UEs supporting 5GS TDD FR2 and Enhanced Receiver Type 1                                                                          | D014                   |                        | PC1<br>PC3 |                            |
| 7.2.2.2.1_3 | 2Rx TDD FR2 PDSCH mapping Type A performance - 2x2 MIMO with 256QAM for SA and NSA (Rel-16 and forward)                     | Rel-16  | C126          | UEs supporting 5GS TDD FR2 and PDSCH 256QAM for FR2                                                                              | D013                   |                        | PC1<br>PC3 |                            |
| 7.2.2.2.2_1 | 2Rx TDD FR2 PDSCH repetitions over multiple slots - 2x2 MIMO with baseline receiver for SA and NSA                          | Rel-16  | C171          | UEs supporting 5GS TDD FR2 and alternative 64QAM MCS table for PDSCH and aggregationFactorDL > 1 for PDSCH repetition multislots | D014                   |                        | PC1<br>PC3 |                            |
| 7.2.2.2.3_1 | 2Rx TDD FR2 PDSCH mapping Type B performance - 2x2 MIMO with baseline receiver for SA and NSA                               | Rel-16  | C172          | UEs supporting 5GS TDD FR2 and aggregationFactorDL > 1 for PDSCH repetition multislots                                           | D014                   |                        | PC1<br>PC3 |                            |

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|             |                                                                                                   |         | Condition     | Comment                                                                              |                        |                        |            |                            |
| 7.2.2.2.4_1 | 2Rx TDD FR2 PDSCH for HST-DPS - 2x2 MIMO with baseline receiver for SA and NSA                    | Rel-17  | C333          | 2Rx TDD FR2 PDSCH for HST-DPS - 2x2 MIMO with baseline receiver for SA and NSA       | D015                   |                        | PC1<br>PC3 |                            |
| 7.2.2.2.5_1 | TDD FR2 PDSCH using Multi-DCI non-overlapping based transmission scheme performance – MultiRx     | Rel-18  | C408          | UEs supporting 5GS TDD FR2 AND Simultaneous Reception AND MultiDCI non overlapping   | D014                   | Note 1                 | PC1<br>PC3 |                            |
| 7.2.2.2.6_1 | TDD FR2 PDSCH using Multi-DCI fully overlapping based transmission scheme performance – MultiRx   | Rel-18  | C409          | UEs supporting 5GS TDD FR2 AND Simultaneous Reception AND MultiDCI fully overlapping | D014                   | Note 1                 | PC1<br>PC3 |                            |
| 7.2.2.2.7_1 | TDD FR2 PDSCH using Single-DCI based SDM scheme performance – MultiRx                             | Rel-18  | C410          | UEs supporting 5GS TDD FR2 AND Simultaneous Reception AND SingleDCI-SDM-scheme       | D014                   | Note 1                 | PC1<br>PC3 |                            |
| 7.2A.2.1    | 2Rx TDD FR2 CA requirements for normal PDSCH Demodulation Performance for both SA and NSA (2DLCA) | Rel-15  | C061a         | UEs supporting 5GS TDD FR2 AND 2DL CA                                                | E032                   |                        | PC1<br>PC3 |                            |
| 7.2A.2.2    | 2Rx TDD FR2 CA requirements for normal PDSCH Demodulation Performance for both SA and NSA (3DLCA) | Rel-15  | C061b         | UEs supporting 5GS TDD FR2 AND 3DL CA                                                | E033                   |                        | PC1<br>PC3 |                            |
| 7.3.2.2.1   | 2Rx TDD FR2 PDCCH 1 Tx antenna performance for both SA and NSA                                    | Rel-15  | C061          | UEs supporting 5GS TDD FR2                                                           | D014                   |                        | PC1<br>PC3 |                            |
| 7.3.2.2.2   | 2Rx TDD FR2 PDCCH 2 Tx antenna performance for both SA and NSA                                    | Rel-15  | C061          | UEs supporting 5GS TDD FR2                                                           | D014                   |                        | PC1<br>PC3 |                            |
| 7.3.2.2.3   | 2Rx TDD FR2 PDCCH 1 Tx antenna performance for power saving                                       | Rel-16  | C092          | UEs supporting 5GS TDD FR2 and Long DRX Cycle and DRX adaptation                     | D014                   |                        | PC1<br>PC3 |                            |
| 7.5.1       | FR2 Sustained downlink data rate performance for single carrier                                   | Rel-15  | C061          | UEs supporting 5GS TDD FR2                                                           | D014                   |                        | PC1<br>PC3 |                            |
| 7.5.1.1     | FR2 SDR performance for CA (2DL CA)                                                               | Rel-15  | C061a         | UEs supporting 5GS TDD FR2 and CA (2DL CA)                                           | E032                   |                        | PC1<br>PC3 |                            |
| 7.5.1.2     | FR2 SDR performance for CA (3DL CA)                                                               | Rel-15  | C061b         | UEs supporting 5GS TDD FR2 and CA (3DL CA)                                           | E033                   | NOTE 1                 | PC1<br>PC3 |                            |
| 7.5.1.3     | FR2 SDR performance for CA (4DL CA)                                                               | Rel-15  | TBD           | UEs supporting 5GS TDD FR2 and CA (4DL CA)                                           | E034                   | NOTE 1                 | PC1<br>PC3 |                            |
| 7.5.1.4     | FR2 SDR performance for CA (5DL CA)                                                               | Rel-15  | TBD           | UEs supporting 5GS TDD FR2 and CA (5DL CA)                                           | E035                   | NOTE 1                 | PC1<br>PC3 |                            |
| 7.5.1.5     | FR2 SDR performance for CA (6DL CA)                                                               | Rel-15  | TBD           | UEs supporting 5GS TDD FR2 and CA (6DL CA)                                           | E036                   | NOTE 1                 | PC1<br>PC3 |                            |
| 7.5.1.6     | FR2 SDR performance for CA (7DL CA)                                                               | Rel-15  | TBD           | UEs supporting 5GS TDD FR2 and CA (7DL CA)                                           | E037                   | NOTE 1                 | PC1<br>PC3 |                            |

| Clause        | TC Title                                                                                                                | Release | Applicability |                                                         | Tested Bands Selection | Additional Information                                                            | Branch     | Subtest Selection Criteria |
|---------------|-------------------------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                                         |         | Condition     | Comment                                                 |                        |                                                                                   |            |                            |
| 7.5.1.7       | FR2 SDR performance for CA (8DL CA)                                                                                     | Rel-15  | TBD           | UEs supporting 5GS TDD FR2 and CA (8DL CA)              | E038                   |                                                                                   | PC1<br>PC3 |                            |
| 7.5.2         | FR2 Sustained downlink data rate performance for RedCap                                                                 | Rel-17  | C197          | RedCap UEs supporting 5GS TDD FR2 and 2Rx UE capability | D014                   |                                                                                   | PC1<br>PC3 |                            |
| 7.6.2.2.1_1   | 2Rx TDD FR2 PDSCH performance with link adaptation - 2x2 MIMO for both SA and NSA                                       | Rel-17  | C377          | UEs supporting 5GS TDD FR2                              | D014                   |                                                                                   | PC1<br>PC3 |                            |
| <b>8</b>      | <b>CSI reporting requirements (Radiated requirements)</b>                                                               |         |               |                                                         |                        |                                                                                   |            |                            |
| 8.2.2.2.1.1   | 2Rx TDD FR2 periodic wideband CQI reporting under AWGN performance for both SA and NSA                                  | Rel-15  | C061          | UEs supporting 5GS TDD FR2                              | D014                   |                                                                                   | PC1<br>PC3 |                            |
| 8.2.2.2.2.1   | 2Rx TDD FR2 aperiodic wideband CQI reporting under fading performance for both SA and NSA                               | Rel-15  | C061          | UEs supporting 5GS TDD FR2                              | D014                   | Skip TC 8.2.2.2.2.1 if TS 38.521-4 TC 8.2.2.2.2.1_1 has been executed and passed. | PC1<br>PC3 |                            |
| 8.2.2.2.2.1_1 | 2Rx TDD FR2 aperiodic CQI wideband reporting under fading performance for both SA and NSA – 256QAM (Rel-16 and forward) | Rel-16  | C126          | UEs supporting 5GS TDD FR2 and DL 256QAM                | D013                   |                                                                                   | PC1<br>PC3 |                            |
| 8.2A.3.1.1    | 2Rx CQI reporting accuracy under AWGN conditions for CA (2DL CA)                                                        | Rel-15  | C006c         | UEs supporting 5GS FR2 and CA (2DL CA)                  | E032                   | Test execution not necessary if 8.2A.3.1.2 is executed.                           | PC1<br>PC3 |                            |
| 8.2A.3.1.2    | 2Rx CQI reporting accuracy under AWGN conditions for CA (3DL CA)                                                        | Rel-15  | C006d         | UEs supporting 5GS FR2 and CA (3DL CA)                  | E033                   | Test execution not necessary if 8.2A.3.1.3 is executed.                           | PC1<br>PC3 |                            |
| 8.2A.3.1.3    | 2Rx CQI reporting accuracy under AWGN conditions for CA (4DL CA)                                                        | Rel-15  | C006e         | UEs supporting 5GS FR2 and CA (4DL CA)                  | E034                   |                                                                                   | PC1<br>PC3 |                            |
| 8.3.2.2.1     | 2Rx TDD FR2 Single PMI with 2TX Type1-SinglePanel codebook for both SA and NSA                                          | Rel-15  | C061          | UEs supporting 5GS TDD FR2                              | D014                   |                                                                                   | PC1<br>PC3 |                            |
| 8.4.2.2.1     | 2Rx TDD FR2 RI reporting for both SA and NSA                                                                            | Rel-15  | C061          | UEs supporting 5GS TDD FR2                              | D014                   |                                                                                   | PC1<br>PC3 |                            |
| <b>9</b>      | <b>Demodulation performance requirements for interworking</b>                                                           |         |               |                                                         |                        |                                                                                   |            |                            |
| 9.4B.1.1      | Sustained downlink data rate performance for EN-DC within FR1                                                           | Rel-15  | C020          | UEs supporting 5GS FDD FR1 or TDD FR1 (NSA)             | D001                   |                                                                                   |            |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                            | TC Title                                                                          | Release | Applicability |                                                                       | Tested Bands Selection | Additional Information | Branch     | Subtest Selection Criteria |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------|------------------------|------------------------|------------|----------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                   |         | Condition     | Comment                                                               |                        |                        |            |                            |
| 9.4B.1.1A                                                                                                                                                                                                                                                                                                                                                                                         | Sustained downlink data rate performance for EN-DC within FR1 with DL 1024QAM     | Rel-17  | C411          | UEs supporting 5GS FDD FR1 or TDD FR1 (NSA) and supporting DL 1024QAM | D001                   |                        |            |                            |
| 9.4B.1.2                                                                                                                                                                                                                                                                                                                                                                                          | Sustained downlink data rate performance for EN-DC including FR2 NR carrier       | Rel-15  | C006q         | UEs supporting 5GS TDD FR2 and ENDC                                   | D005                   |                        | PC1<br>PC3 |                            |
| <b>10</b>                                                                                                                                                                                                                                                                                                                                                                                         | <b>CSI reporting requirements for interworking</b>                                |         |               |                                                                       |                        |                        |            |                            |
| <b>11</b>                                                                                                                                                                                                                                                                                                                                                                                         | <b>V2X requirements</b>                                                           |         |               |                                                                       |                        |                        |            |                            |
| 11.1.2.1.1_1                                                                                                                                                                                                                                                                                                                                                                                      | 2Rx FR1 PSSCH performance - single active PSSCH link                              | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                | D016                   |                        |            |                            |
| 11.1.3.1.1_1                                                                                                                                                                                                                                                                                                                                                                                      | 2Rx FR1 PSCCH performance - single active PSSCH link                              | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                | D016                   |                        |            |                            |
| 11.1.5.1.1_1                                                                                                                                                                                                                                                                                                                                                                                      | 2Rx FR1 PSCCH performance - single active PSSCH link                              | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                | D016                   |                        |            |                            |
| 11.1.6.1.1_1                                                                                                                                                                                                                                                                                                                                                                                      | 2Rx FR1 Power imbalance performance - two active PSSCH link                       | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                | D016                   |                        |            |                            |
| 11.1.7.1.1_1                                                                                                                                                                                                                                                                                                                                                                                      | 2Rx FR1 HARQ buffer soft combining performance - maximum number of HARQ processes | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                | D016                   |                        |            |                            |
| 11.1.8.1.1_1                                                                                                                                                                                                                                                                                                                                                                                      | 2Rx FR1 PSCCH decoding capability - maximum number of received PSCCHs             | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                | D016                   |                        |            |                            |
| 11.1.9.1.1_1                                                                                                                                                                                                                                                                                                                                                                                      | 2Rx FR1 PSFCH decoding capability - maximum number of received PSFCHs             | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink                                | D016                   |                        |            |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in TS 38.521-4 [4]. |                                                                                   |         |               |                                                                       |                        |                        |            |                            |
| NOTE 2: Void.                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   |         |               |                                                                       |                        |                        |            |                            |
| NOTE 3: Void                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                   |         |               |                                                                       |                        |                        |            |                            |

Table 4.1.4-1a: Void

Table 4.1.4-1b: Void

Table 4.1.4-1c: Void

4.2 RRM conformance test cases

Table 4.2-1: Applicability of RRM EN-DC FR1 conformance test cases, ref. TS 38.533 [5]

| Clause         | TC Title                                                                                                     | Release | Applicability |                                          | Additional Information                                            | Branch            | Subtest Selection Criteria |
|----------------|--------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------|-------------------------------------------------------------------|-------------------|----------------------------|
|                |                                                                                                              |         | Condition     | Comment                                  |                                                                   |                   |                            |
| <b>4.3</b>     | <b>RRC_CONNECTED state mobility</b>                                                                          |         |               |                                          |                                                                   |                   |                            |
| <b>4.3.2</b>   | <b>RRC connection mobility control</b>                                                                       |         |               |                                          |                                                                   |                   |                            |
| <b>4.3.2.2</b> | <b>Random access</b>                                                                                         |         |               |                                          |                                                                   |                   |                            |
| 4.3.2.2.1      | EN-DC FR1 contention based random access                                                                     | Rel-15  | C021          | UEs supporting EN-DC FR1                 | Test execution not necessary if test 6.3.2.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.3.2.2.2      | EN-DC FR1 non-contention based random access                                                                 | Rel-15  | C021          | UEs supporting EN-DC FR1                 | Test execution not necessary if test 6.3.2.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx | Subtest 2: F001            |
| 4.3.2.2.3      | EN-DC FR1 2-step contention based random access                                                              | Rel-16  | C157          | UEs supporting EN-DC FR1 and 2-step RACH | Test execution not necessary if test 6.3.2.2.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.3.2.2.4      | EN-DC FR1 2-step non-contention based random access                                                          | Rel-16  | C158          | UEs supporting EN-DC FR1 and 2-step RACH | Test execution not necessary if test 6.3.2.2.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.4</b>     | <b>Timing</b>                                                                                                |         |               |                                          |                                                                   |                   |                            |
| <b>4.4.1</b>   | <b>UE Transmit Timing</b>                                                                                    |         |               |                                          |                                                                   |                   |                            |
| 4.4.1.1        | EN-DC FR1 UE transmit timing accuracy                                                                        | Rel-15  | C021          | UEs supporting EN-DC FR1                 | Test execution not necessary if test 6.4.1.1 has been executed.   | 2Rx<br>4Rx<br>8Rx | Subtest 2: F002            |
| <b>4.4.2</b>   | <b>UE timer accuracy</b>                                                                                     |         |               |                                          |                                                                   |                   |                            |
| <b>4.4.3</b>   | <b>Timing Advance</b>                                                                                        |         |               |                                          |                                                                   |                   |                            |
| 4.4.3.1        | EN-DC FR1 timing advance adjustment accuracy                                                                 | Rel-15  | C021          | UEs supporting EN-DC FR1                 | Test execution not necessary if test 6.4.3.1 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5</b>     | <b>Signalling characteristics</b>                                                                            |         |               |                                          |                                                                   |                   |                            |
| <b>4.5.1</b>   | <b>Radio link monitoring</b>                                                                                 |         |               |                                          |                                                                   |                   |                            |
| 4.5.1.1        | EN-DC FR1 radio link monitoring out-of-sync test for PSCell configured with SSB-based RLM RS in non-DRX mode | Rel-15  | C021          | UEs supporting EN-DC FR1                 | Test execution not necessary if test 6.5.1.1 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.1.2        | EN-DC FR1 radio link monitoring in-sync test for PSCell configured with SSB-based RLM RS in non-DRX mode     | Rel-15  | C021          | UEs supporting EN-DC FR1                 | Test execution not necessary if test 6.5.1.2 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |

| Clause       | TC Title                                                                                                                                     | Release | Applicability |                                                                       | Additional Information                                          | Branch            | Subtest Selection Criteria |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------|-----------------------------------------------------------------|-------------------|----------------------------|
|              |                                                                                                                                              |         | Condition     | Comment                                                               |                                                                 |                   |                            |
| 4.5.1.3      | EN-DC FR1 radio link monitoring out-of-sync test for PSCell configured with SSB-based RLM RS in DRX mode                                     | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                           | Test execution not necessary if test 6.5.1.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.1.4      | EN-DC FR1 radio link monitoring in-sync test for PSCell configured with SSB-based RLM RS in DRX mode                                         | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                           | Test execution not necessary if test 6.5.1.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.1.5      | EN-DC FR1 radio link monitoring out-of-sync test for PSCell configured with CSI-RS-based RLM RS in non-DRX mode                              | Rel-15  | C038          | UEs supporting EN-DC FR1 and CSI-RS-based RLM                         | Test execution not necessary if test 6.5.1.5 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.1.6      | EN-DC FR1 radio link monitoring in-sync test for PSCell configured with CSI-RS-based RLM RS in non-DRX mode                                  | Rel-15  | C038          | UEs supporting EN-DC FR1 and CSI-RS-based RLM                         | Test execution not necessary if test 6.5.1.6 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.1.7      | EN-DC FR1 radio link monitoring out-of-sync test for PSCell configured with CSI-RS-based RLM RS in DRX mode                                  | Rel-15  | C038a         | UEs supporting EN-DC FR1, CSI-RS-based RLM and long DRX cycle         | Test execution not necessary if test 6.5.1.7 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.1.8      | EN-DC FR1 radio link monitoring in-sync test for PSCell configured with CSI-RS-based RLM RS in DRX mode                                      | Rel-15  | C038a         | UEs supporting EN-DC FR1, CSI-RS-based RLM and long DRX cycle         | Test execution not necessary if test 6.5.1.8 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.1.9      | EN-DC FR1 Radio Link Monitoring Out-of-sync Test for PSCell configured with SSB-based RLM RS for UE fulfilling relaxed measurement criterion | Rel-17  | C021e         | UEs supporting EN-DC FR1, long DRX cycle and RLM relaxed measurements |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.2</b> | <b>Interruption</b>                                                                                                                          |         |               |                                                                       |                                                                 |                   |                            |
| 4.5.2.1      | EN-DC FR1 interruptions at transitions between active and non-active during DRX in synchronous EN-DC                                         | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                           |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.2.2      | EN-DC FR1 interruptions at transitions between active and non-active during DRX in asynchronous EN-DC                                        | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                           |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.2.3      | EN-DC FR1 interruptions during measurements on deactivated NR SCC in synchronous EN-DC                                                       | Rel-15  | C067          | UEs supporting EN-DC FR1 and 2DL CA in NR                             |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.2.4      | EN-DC FR1 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC                                                      | Rel-15  | C067          | UEs supporting EN-DC FR1 and 2DL CA in NR                             |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |

| Clause       | TC Title                                                                                                | Release | Applicability |                                                                                      | Additional Information | Branch            | Subtest Selection Criteria |
|--------------|---------------------------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------|------------------------|-------------------|----------------------------|
|              |                                                                                                         |         | Condition     | Comment                                                                              |                        |                   |                            |
| 4.5.2.5      | EN-DC FR1 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC             | Rel-15  | C068          | UEs supporting EN-DC FR1 and 2DL CA in E-UTRA                                        |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.2.6      | EN-DC FR1 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC            | Rel-15  | C068          | UEs supporting EN-DC FR1 and 2DL CA in E-UTRA                                        |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.2.8      | EN-DC FR1 interruptions at NR SRS carrier based switching in asynchronous EN-DC                         | Rel-16  | C067a         | UEs supporting EN-DC FR1 and 2DL CA in NR and NR SRS carrier based switching         | Note 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.2.9      | EN-DC FR1 interruptions at E-UTRA SRS carrier based switching                                           | Rel-16  | C068a         | UEs supporting EN-DC FR1 and 2DL CA in E-UTRA and E-UTRA SRS carrier based switching | Note 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.2.10     | EN-DC FR1 interruptions due to RRM and RLM/BFD measurements on deactivated NR PSCell                    | Rel-17  | C288          | UEs supporting EN-DC FR1 and activation and deactivation on SCG                      |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.3</b> | <b>SCell activation and deactivation delay</b>                                                          |         |               |                                                                                      |                        |                   |                            |
| 4.5.3.1      | EN-DC FR1 SCell activation and deactivation of known SCell in non-DRX for 160ms SCell measurement cycle | Rel-15  | C067          | UEs supporting EN-DC FR1 and 2DL CA in NR                                            |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.3.2      | EN-DC FR1 SCell activation and deactivation of known SCell in non-DRX for 640ms SCell measurement cycle | Rel-15  | C067          | UEs supporting EN-DC FR1 and 2DL CA in NR                                            |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.3.3      | EN-DC FR1 SCell activation and deactivation of unknown SCell in non-DRX                                 | Rel-15  | C067          | UEs supporting EN-DC FR1 and 2DL CA in NR                                            |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.3.5      | EN-DC FR1 direct SCell activation at SCell addition of known SCell                                      | Rel-16  | C243          | UEs supporting EN-DC FR1 and 2DL CA in NR and direct SCell activation                |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.3.6      | EN-DC FR1 fast SCell Activation of known SCell in non-DRX for 160ms SCell measurement cycle             | Rel-17  | C267          | UEs supporting EN-DC FR1 and 2DL CA in NR and fast SCell activation                  |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.3.7      | EN-DC FR1 fast SCell Activation in non-DRX of known SCell for 640ms SCell measurement cycle             | Rel-17  | C267          | UEs supporting EN-DC FR1 and 2DL CA in NR and fast SCell activation                  |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.3.11     | EN-DC FR1 TRS-based SCell Activation of SSB-less SCell in FR1 collocated inter-band in non-DRX          | Rel-18  | C387          | UEs supporting EN-DC FR1 and 2DL CA in NR and inter-band SSB-less SCell operation    |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.3.12     | EN-DC FR1 Inter-band SSB-less SCell Activation based on A-TRS                                           | Rel18   | C267a         | UEs supporting EN-DC FR1 and 2DL CA in NR and fast SCell activation based on A-TRS   |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.4</b> | <b>UE UL carrier RRC reconfiguration delay</b>                                                          |         |               |                                                                                      |                        |                   |                            |

| Clause         | TC Title                                                                                                | Release | Applicability |                                                                                        | Additional Information                                          | Branch            | Subtest Selection Criteria |
|----------------|---------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------|----------------------------|
|                |                                                                                                         |         | Condition     | Comment                                                                                |                                                                 |                   |                            |
| 4.5.4.1        | EN-DC FR1 UE UL carrier RRC reconfiguration delay                                                       | Rel-15  | C032          | UEs supporting EN-DC FR1 and SUL                                                       | Test execution not necessary if test 6.5.4.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.5</b>   | <b>Beam failure detection and link recovery procedures</b>                                              |         |               |                                                                                        |                                                                 |                   |                            |
| 4.5.5.1        | EN-DC FR1 SSB-based beam failure detection and link recovery in non-DRX                                 | Rel-15  | C082          | UEs supporting EN-DC FR1 and link recovery                                             | Test execution not necessary if test 6.5.5.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.5.2        | EN-DC FR1 SSB-based beam failure detection and link recovery in DRX                                     | Rel-15  | C082a         | UEs supporting EN-DC FR1 and long DRX cycle and link recovery                          | Test execution not necessary if test 6.5.5.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.5.3        | EN-DC FR1 CSI-RS-based beam failure detection and link recovery in non-DRX                              | Rel-15  | C083          | UEs supporting EN-DC FR1 and CSI-RS-based RLM and link recovery                        | Test execution not necessary if test 6.5.5.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.5.4        | EN-DC FR1 CSI-RS-based beam failure detection and link recovery in DRX                                  | Rel-15  | C083a         | UEs supporting EN-DC FR1 and long DRX cycle and CSI-RS-based RLM and link recovery     | Test execution not necessary if test 6.5.5.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.5.5        | EN-DC FR1 Scell CSI-RS-based beam failure detection and SSB-based link recovery in non-DRX              | Rel-16  | C175          | UEs supporting EN-DC FR1 and CSI-RS-based RLM and SSB link recovery                    | Test execution not necessary if test 6.5.5.5 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.5.6        | EN-DC FR1 Scell CSI-RS-based beam failure detection and SSB-based link recovery in DRX                  | Rel-16  | C176          | UEs supporting EN-DC FR1 and long DRX cycle and CSI-RS-based RLM and SSB link recovery | Test execution not necessary if test 6.5.5.6 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.5.7        | EN-DC FR1 PSCell TRP specific SSB-based beam failure detection and link recovery in non-DRX             | Rel-17  | C082b         | UEs supporting TRP specific EN-DC FR1 and link recovery                                |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.5.8        | EN-DC FR1 SCell TRP specific CSI-RS-based beam failure detection and SSB-based link recovery in non-DRX | Rel-17  | C175a         | UEs supporting TRP specific EN-DC FR1 and CSI-RS-based RLM and SSB link recovery       |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.6</b>   | <b>Active BWP switch delay</b>                                                                          |         |               |                                                                                        |                                                                 |                   |                            |
| <b>4.5.6.1</b> | <b>DCI-based and timer-based active BWP switch</b>                                                      |         |               |                                                                                        |                                                                 |                   |                            |

| Clause         | TC Title                                                                                      | Release | Applicability |                                                                                                                                                        | Additional Information | Branch            | Subtest Selection Criteria |
|----------------|-----------------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|----------------------------|
|                |                                                                                               |         | Condition     | Comment                                                                                                                                                |                        |                   |                            |
| 4.5.6.1.1      | EN-DC FR1 DCI-based DL active BWP switch in non-DRX in synchronous EN-DC                      | Rel-15  | C065          | UEs supporting EN-DC FR1 and (DCI and timer based active BWP switching delay Type1 or Type2) and (Support of BWP adaptation upto2 or upto4)            |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 4.5.6.1.2      | EN-DC FR1 DCI-based DL active BWP switch with SCell in non-DRX in synchronous EN-DC           | Rel-15  | C065a         | UEs supporting EN-DC FR1 and (DCI and timer based active BWP switching delay Type1 or Type2) and (Support of BWP adaptation upto2 or upto4) and 2DL CA |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.6.2</b> | <b>RRC-based active BWP switch</b>                                                            |         |               |                                                                                                                                                        |                        |                   |                            |
| 4.5.6.2.1      | EN-DC FR1 RRC-based DL active BWP switch in non-DRX in synchronous EN-DC                      | Rel-15  | C065b         | UEs supporting EN-DC FR1 and (Support of BWP adaptation upto2 or upto4)                                                                                |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.6.3</b> | <b>Simultaneous DCI-based and Timer-based Active BWP Switch on multiple CCs</b>               |         |               |                                                                                                                                                        |                        |                   |                            |
| 4.5.6.3.1      | Simultaneous E-UTRAN – NR PSCell FR1 DL active BWP switch in non-DRX in EN-DC on multiple CCs | Rel-16  | C065d         | UEs supporting EN-DC FR1, incremental delay for DCI and timer based active BWP switching on multiple CCs simultaneously and 2DL CA                     | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.6.4</b> |                                                                                               |         |               |                                                                                                                                                        |                        |                   |                            |
| <b>4.5.6.5</b> | <b>Simultaneous RRC-based Active BWP Switch on multiple CCs</b>                               |         |               |                                                                                                                                                        |                        |                   |                            |
| 4.5.6.5.1      | E-UTRAN – NR PSCell FR1 DL active BWP switch in non-DRX in synchronous EN-DC on multiple CCs  | Rel-16  | C065d         | UEs supporting EN-DC FR1, incremental delay for DCI and timer based active BWP switching on multiple CCs simultaneously and 2DL CA                     | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.7</b>   | <b>PSCell addition and release delay</b>                                                      |         |               |                                                                                                                                                        |                        |                   |                            |
| 4.5.7.1        | EN-DC FR1 addition and release delay of known PSCell                                          | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                                                               |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.8</b>   | <b>UL switching</b>                                                                           |         |               |                                                                                                                                                        |                        |                   |                            |
| 4.5.8.1        | EN-DC FR1 interruptions at switching between two uplink carriers                              | Rel-16  | C126a         | UEs supporting EN-DC and dynamic UL Tx switching in case of inter-band EN-DC                                                                           |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.5.10</b>  | <b>PSCell activation and deactivation delay</b>                                               |         |               |                                                                                                                                                        |                        |                   |                            |
| 4.5.10.1       | EN-DC FR1 PSCell activation and deactivation delay                                            | Rel-17  | C288          | UEs supporting EN-DC FR1 and activation and deactivation on SCG                                                                                        |                        | 2Rx<br>4Rx<br>8Rx |                            |

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|               |                                                                                                                                   |         | Condition     | Comment                                                                                                    |                                                                 |                   |                            |
| <b>4.5.11</b> | <b>Conditional PSCell addition and release delay (FR1 EN-DC)</b>                                                                  |         |               |                                                                                                            |                                                                 |                   |                            |
| 4.5.11.1      | EN-DC FR1 Conditional PSCell Addition Delay                                                                                       | Rel-17  | C268          | UEs supporting EN-DC FR1 and conditional PSCell addition in EN-DC                                          |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.6</b>    | <b>Measurement procedures</b>                                                                                                     |         |               |                                                                                                            |                                                                 |                   |                            |
| <b>4.6.1</b>  | <b>Intra-frequency measurements</b>                                                                                               |         |               |                                                                                                            |                                                                 |                   |                            |
| 4.6.1.1       | EN-DC FR1 event-triggered reporting without gap in non-DRX                                                                        | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                   | Test execution not necessary if test 6.6.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.1.2       | EN-DC FR1 event-triggered reporting without gap in DRX                                                                            | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                                                                | Test execution not necessary if test 6.6.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.1.3       | EN-DC FR1 event-triggered reporting with gap in non-DRX                                                                           | Rel-15  | C042          | UEs supporting EN-DC FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction              | Test execution not necessary if test 6.6.1.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.1.4       | EN-DC FR1 event-triggered reporting with gap in DRX                                                                               | Rel-15  | C042a         | UEs supporting EN-DC FR1, CSI-RS-based RLM, BWP operation without bandwidth restriction and long DRX cycle | Test execution not necessary if test 6.6.1.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.1.5       | EN-DC FR1 event-triggered reporting without gap in non-DRX with SSB time index detection                                          | Rel-15  | C021b         | UEs supporting EN-DC FDD FR1                                                                               | Test execution not necessary if test 6.6.1.5 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.1.6       | EN-DC FR1 event-triggered reporting with gap in non-DRX with SSB time index detection                                             | Rel-15  | C042b         | UEs supporting EN-DC FDD FR1 and CSI-RS based RLM and BWP operation without bandwidth restriction          | Test execution not necessary if test 6.6.1.6 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.1.7       | EN-DC FR1 event-triggered reporting without gap in DRX for UE configured with highSpeedMeasFlag-r16                               | Rel-16  | C097          | UEs supporting EN-DC FR1 and long DRX cycle and measurement enhancements in HST                            | Test execution not necessary if test 6.6.1.7 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.1.8       | EN-DC FR1 event triggered reporting cell without SSB time index detection in DRX for UE configured with highSpeedMeasCA-Scell-r17 | Rel-17  | C021c         | UEs supporting EN-DC FR1 and CA measurement enhancements in HST                                            | Test execution not necessary if test 6.6.1.8 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.6.2</b>  | <b>Inter-frequency measurements</b>                                                                                               |         |               |                                                                                                            |                                                                 |                   |                            |

| Clause       | TC Title                                                                                                                          | Release | Applicability |                                                                                      | Additional Information                                           | Branch            | Subtest Selection Criteria |
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|              |                                                                                                                                   |         | Condition     | Comment                                                                              |                                                                  |                   |                            |
| 4.6.2.1      | EN-DC FR1-FR1 event-triggered reporting in non-DRX                                                                                | Rel-15  | C021          | UEs supporting EN-DC FR1                                                             | Test execution not necessary if test 6.6.2.1 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.2.2      | EN-DC FR1-FR1 event-triggered reporting in DRX                                                                                    | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                                          | Test execution not necessary if test 6.6.2.2 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.2.5      | EN-DC FR1-FR1 event-triggered reporting in non-DRX with SSB time index detection                                                  | Rel-15  | C021          | UEs supporting EN-DC FR1                                                             | Test execution not necessary if test 6.6.2.5 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.2.6      | EN-DC FR1-FR1 event-triggered reporting in DRX with SSB time index detection                                                      | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                                          | Test execution not necessary if test 6.6.2.6 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.2.9      | EN-DC FR1-FR1 event triggered reporting without SSB time index detection in DRX for UE configured with highSpeedMeasInterFreq-r17 | Rel-17  | C021d         | UEs supporting EN-DC FR1 and inter-frequency measurement enhancements in HST         | Test execution not necessary if test 6.6.2.12 has been executed. | 2Rx<br>4Rx<br>8Rx | Subtest 2: F016            |
| <b>4.6.4</b> | <b>L1-RSRP for beam reporting</b>                                                                                                 |         |               |                                                                                      |                                                                  |                   |                            |
| 4.6.4.1      | EN-DC FR1 SSB-based L1-RSRP measurement in non-DRX                                                                                | Rel-15  | C021          | UEs supporting EN-DC FR1                                                             | Test execution not necessary if test 6.6.4.1 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.4.2      | EN-DC FR1 SSB-based L1-RSRP measurement in DRX                                                                                    | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                                          | Test execution not necessary if test 6.6.4.2 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.4.3      | EN-DC FR1 CSI-RS-based L1-RSRP measurement in non-DRX                                                                             | Rel-15  | C021          | UEs supporting EN-DC FR1                                                             | Test execution not necessary if test 6.6.4.3 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.4.4      | EN-DC FR1 CSI-RS-based L1-RSRP measurement in DRX                                                                                 | Rel-15  | C021a         | UEs supporting EN-DC FR1 and long DRX cycle                                          | Test execution not necessary if test 6.6.4.4 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.4.5      | EN-DC FR1 SSB-based L1-RSRP measurement in DRX for UE configured with highSpeedMeasFlag-r16                                       | Rel-16  | C098          | UEs supporting EN-DC FR1, long DRX cycle and intra-NR measurement enhancement in HST | Test execution not necessary if test 6.6.4.5 has been executed.  | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.6.7</b> | <b>L1-SINR for beam reporting</b>                                                                                                 |         |               |                                                                                      |                                                                  |                   |                            |

| Clause         | TC Title                                                                       | Release | Applicability |                                                                                                                        | Additional Information                                            | Branch            | Subtest Selection Criteria |
|----------------|--------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------|----------------------------|
|                |                                                                                |         | Condition     | Comment                                                                                                                |                                                                   |                   |                            |
| 4.6.7.1        | EN-DC FR1 CSI-RS based CMR and no dedicated IMR L1-SINR measurement in non-DRX | Rel-16  | C141          | UEs supporting EN-DC FR1 and L1-SINR measurement based on CSI-RS as CMR without dedicated IMR configured               |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.7.2        | EN-DC FR1 SSB based CMR and dedicated IMR L1-SINR measurement in DRX           | Rel-16  | C142          | UEs supporting EN-DC FR1 and long DRX cycle and L1-SINR measurement based on SSB as CMR and dedicated CSI-IM as IMR    |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| 4.6.7.3        | EN-DC FR1 CSI-RS based CMR and dedicated IMR L1-SINR measurement in DRX        | Rel-16  | C143          | UEs supporting EN-DC FR1 and long DRX cycle and L1-SINR measurement based on CSI-RS as CMR and dedicated CSI-RS as IMR |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.7</b>     | <b>Measurement performance requirements</b>                                    |         |               |                                                                                                                        |                                                                   |                   |                            |
| <b>4.7.1</b>   | <b>SS-RSRP</b>                                                                 |         |               |                                                                                                                        |                                                                   |                   |                            |
| <b>4.7.1.1</b> | <b>Intra-frequency measurements</b>                                            |         |               |                                                                                                                        |                                                                   |                   |                            |
| 4.7.1.1.1      | EN-DC FR1 SS-RSRP absolute measurement accuracy                                | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                               | Test execution not necessary if test 6.7.1.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.1.1.2      | EN-DC FR1 SS-RSRP relative measurement accuracy                                | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                               | Test execution not necessary if test 6.7.1.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.7.1.2</b> | <b>Inter-frequency measurements</b>                                            |         |               |                                                                                                                        |                                                                   |                   |                            |
| 4.7.1.2.1      | EN-DC FR1-FR1 SS-RSRP absolute measurement accuracy                            | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                               | Test execution not necessary if test 6.7.1.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.1.2.2      | EN-DC FR1-FR1 SS-RSRP relative measurement accuracy                            | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                               | Test execution not necessary if test 6.7.1.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.7.2</b>   | <b>SS-RSRQ</b>                                                                 |         |               |                                                                                                                        |                                                                   |                   |                            |
| 4.7.2.1        | EN-DC FR1 SS-RSRQ measurement accuracy                                         | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                               | Test execution not necessary if test 6.7.2.1 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.2.2.1      | EN-DC FR1-FR1 SS-RSRQ absolute measurement accuracy                            | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                               | Test execution not necessary if test 6.7.2.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |

| Clause       | TC Title                                                                                                                                     | Release | Applicability |                                                                                                          | Additional Information                                            | Branch            | Subtest Selection Criteria |
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|              |                                                                                                                                              |         | Condition     | Comment                                                                                                  |                                                                   |                   |                            |
| 4.7.2.2.2    | EN-DC FR1-FR1 SS-RSRQ relative measurement accuracy                                                                                          | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                 | Test execution not necessary if test 6.7.2.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.7.3</b> | <b>SS-SINR</b>                                                                                                                               |         |               |                                                                                                          |                                                                   |                   |                            |
| 4.7.3.1      | EN-DC FR1 SS-SINR measurement accuracy                                                                                                       | Rel-15  | C035          | UEs supporting EN-DC FR1 and SS-SINR-meas                                                                | Test execution not necessary if test 6.7.3.1 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.3.2.1    | EN-DC FR1-FR1 SS-SINR absolute measurement accuracy                                                                                          | Rel-15  | C035          | UEs supporting EN-DC FR1 and SS-SINR-meas                                                                | Test execution not necessary if test 6.7.3.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.3.2.2    | EN-DC FR1-FR1 SS-SINR relative measurement accuracy                                                                                          | Rel-15  | C035          | UEs supporting EN-DC FR1 and SS-SINR-meas                                                                | Test execution not necessary if test 6.7.3.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.7.4</b> | <b>L1-RSRP</b>                                                                                                                               |         |               |                                                                                                          |                                                                   |                   |                            |
| 4.7.4.1.1    | EN-DC FR1 SSB-based L1-RSRP absolute measurement accuracy                                                                                    | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                 | Test execution not necessary if test 6.7.4.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.4.1.2    | EN-DC FR1 SSB-based L1-RSRP relative measurement accuracy                                                                                    | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                 | Test execution not necessary if test 6.7.4.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.4.2.1    | EN-DC FR1 CSI-RS-based L1-RSRP absolute measurement accuracy                                                                                 | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                 | Test execution not necessary if test 6.7.4.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.4.2.2    | EN-DC FR1 CSI-RS-based L1-RSRP relative measurement accuracy                                                                                 | Rel-15  | C021          | UEs supporting EN-DC FR1                                                                                 | Test execution not necessary if test 6.7.4.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.7.5</b> | <b>SFTD</b>                                                                                                                                  |         |               |                                                                                                          |                                                                   |                   |                            |
| 4.7.5.1      | EN-DC FR1 SFTD measurement accuracy                                                                                                          | Rel-15  | C043          | UEs supporting EN-DC FR1 and SFTD measurements between E-UTRA Pcell and NR PSCell                        |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>4.7.7</b> | <b>L1-SINR</b>                                                                                                                               |         |               |                                                                                                          |                                                                   |                   |                            |
| 4.7.7.1.1    | EN-DC FR1 CSI-RS based CMR and no dedicated IMR configured and CSI-RS resource set with repetition off L1-SINR absolute measurement accuracy | Rel-16  | C135          | UEs supporting EN-DC FR1 and L1-SINR-measurement based on CSI-RS as CMR without dedicated IMR configured | Test execution not necessary if test 6.7.9.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                                                                                     | Release | Applicability |                                                                                                          | Additional Information                                            | Branch            | Subtest Selection Criteria |
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|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                              |         | Condition     | Comment                                                                                                  |                                                                   |                   |                            |
| 4.7.7.1.2                                                                                                                                                                                                                                                                                                                                                                                | EN-DC FR1 CSI-RS based CMR and no dedicated IMR configured and CSI-RS resource set with repetition off L1-SINR relative measurement accuracy | Rel-16  | C135          | UEs supporting EN-DC FR1 and L1-SINR-measurement based on CSI-RS as CMR without dedicated IMR configured | Test execution not necessary if test 6.7.9.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.7.2                                                                                                                                                                                                                                                                                                                                                                                  | EN-DC FR1 SSB based CMR and dedicated IMR L1-SINR absolute measurement accuracy                                                              | Rel-16  | C136          | UEs supporting EN-DC FR1 and L1-SINR-measurement based on SSB as CMR and dedicated CSI-IM as IMR         | Test execution not necessary if test 6.7.9.2 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.7.3.1                                                                                                                                                                                                                                                                                                                                                                                | EN-DC FR1 CSI-RS based CMR and dedicated IMR L1-SINR absolute measurement accuracy                                                           | Rel-16  | C137          | UEs supporting 5GS NR SA FR1 and L1-SINR-measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR  | Test execution not necessary if test 6.7.9.3.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.7.3.2                                                                                                                                                                                                                                                                                                                                                                                | EN-DC FR1 CSI-RS based CMR and dedicated IMR L1-SINR relative measurement accuracy                                                           | Rel-16  | C137          | UEs supporting 5GS NR SA FR1 and L1-SINR-measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR  | Test execution not necessary if test 6.7.9.3.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.8.1.1                                                                                                                                                                                                                                                                                                                                                                                | EN-DC Intra-frequency measurement accuracy with FR1 serving cell and FR1 target cell absolute measurement accuracy                           | Rel-16  | C336          | UEs supporting EN-DC FR1 and CSI-RS based RSRP and RSRQ                                                  |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.8.1.2                                                                                                                                                                                                                                                                                                                                                                                | EN-DC Intra-frequency measurement accuracy with FR1 serving cell and FR1 target cell relative measurement accuracy                           | Rel-16  | C336          | UEs supporting EN-DC FR1 and CSI-RS based RSRP and RSRQ                                                  |                                                                   | 2Rx<br>4Rx        |                            |
| 4.7.8.2.1                                                                                                                                                                                                                                                                                                                                                                                | EN-DC inter-frequency measurement accuracy with FR1 serving cell and FR1 target cell absolute measurement accuracy                           | Rel-16  | C336          | UEs supporting EN-DC FR1 and CSI-RS based RSRP and RSRQ                                                  |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| 4.7.8.2.2                                                                                                                                                                                                                                                                                                                                                                                | EN-DC inter-frequency measurement accuracy with FR1 serving cell and FR1 target cell relative measurement accuracy                           | Rel-16  | C336          | UEs supporting EN-DC FR1 and CSI-RS based RSRP and RSRQ                                                  |                                                                   | 2Rx<br>4Rx        |                            |
| <b>4A</b>                                                                                                                                                                                                                                                                                                                                                                                | <b>NE-DC with all NR cells in FR1</b>                                                                                                        |         |               |                                                                                                          |                                                                   |                   |                            |
| <b>4A.1</b>                                                                                                                                                                                                                                                                                                                                                                              | <b>Signalling characteristics</b>                                                                                                            |         |               |                                                                                                          |                                                                   |                   |                            |
| <b>4A.1.1</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>E-UTRA PSCell addition</b>                                                                                                                |         |               |                                                                                                          |                                                                   |                   |                            |
| 4A.1.1.1                                                                                                                                                                                                                                                                                                                                                                                 | NE-DC FR1 addition and release delay of known PSCell                                                                                         | Rel-15  | FFS           | FFS                                                                                                      | NOTE 1                                                            | 2Rx<br>4Rx<br>8Rx |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                                                                                              |         |               |                                                                                                          |                                                                   |                   |                            |
| NOTE 2: Test X refers to the corresponding Sub-Test as defined in TS 38.533 [5].                                                                                                                                                                                                                                                                                                         |                                                                                                                                              |         |               |                                                                                                          |                                                                   |                   |                            |

Table 4.2-1a: Void

**Table 4.2-2: Applicability of RRM EN-DC FR2 conformance test cases, ref. TS 38.533 [5]**

| Clause         | TC Title                                                                                                     | Release | Applicability |                                                                       | Additional Information | Branch                     | Subtest Selection Criteria |
|----------------|--------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------|------------------------|----------------------------|----------------------------|
|                |                                                                                                              |         | Condition     | Comment                                                               |                        |                            |                            |
| <b>5.3</b>     | <b>RRC_CONNECTED state mobility</b>                                                                          |         |               |                                                                       |                        |                            |                            |
| <b>5.3.2</b>   | <b>RRC connection mobility control</b>                                                                       |         |               |                                                                       |                        |                            |                            |
| <b>5.3.2.2</b> | <b>Random access</b>                                                                                         |         |               |                                                                       |                        |                            |                            |
| 5.3.2.2.1      | EN-DC FR2 contention based random access                                                                     | Rel-16  | C022          | UEs supporting EN-DC FR2                                              |                        | PC1<br>PC3                 |                            |
| 5.3.2.2.2      | EN-DC FR2 non-contention based random access                                                                 | Rel-16  | C022          | UEs supporting EN-DC FR2                                              |                        | PC1<br>PC3                 | Subtest 2: F001            |
| 5.3.2.2.3      | EN-DC FR2 2-step contention based random access                                                              | Rel-16  | C158          | UEs supporting EN-DC FR2 and 2-step RACH                              |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.3.2.2.4      | EN-DC FR2 2-step non-contention based random access                                                          | Rel-16  | C158          | UEs supporting EN-DC FR2 and 2-step RACH                              |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| <b>5.4</b>     | <b>Timing</b>                                                                                                |         |               |                                                                       |                        |                            |                            |
| <b>5.4.1</b>   | <b>UE transmit timing</b>                                                                                    |         |               |                                                                       |                        |                            |                            |
| 5.4.1.1        | EN-DC FR2 UE transmit timing accuracy                                                                        | Rel-15  | C022          | UEs supporting EN-DC FR2                                              |                        | PC1<br>PC3                 | Subtest 2: F002            |
| 5.4.1.2        | NR UE Transmit Timing Test with 2-TA for FR2 UE supporting multiDCI-IntraCellMultiTRP-TwoTA-r18              | Rel-18  | C388          | UEs supporting EN-DC FR2 and 2 TAGs for multi-DCI multi-TRP operation |                        | PC1(NOTE 1)<br>PC3(NOTE 1) | Subtest 2: F002            |
| <b>5.4.2</b>   | <b>UE timer accuracy</b>                                                                                     |         |               |                                                                       |                        |                            |                            |
| <b>5.4.3</b>   | <b>Timing advance</b>                                                                                        |         |               |                                                                       |                        |                            |                            |
| 5.4.3.1        | EN-DC FR2 timing advance adjustment accuracy                                                                 | Rel-15  | C022          | UEs supporting EN-DC FR2                                              |                        | PC1<br>PC3                 |                            |
| <b>5.5</b>     | <b>Signalling characteristics</b>                                                                            |         |               |                                                                       |                        |                            |                            |
| <b>5.5.1</b>   | <b>Radio link monitoring</b>                                                                                 |         |               |                                                                       |                        |                            |                            |
| 5.5.1.1        | EN-DC FR2 radio link monitoring out-of-sync test for PSCell configured with SSB-based RLM RS in non-DRX mode | Rel-15  | C022          | UEs supporting EN-DC FR2                                              |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.1.2        | EN-DC FR2 radio link monitoring in-sync test for PSCell configured with SSB-based RLM RS in non-DRX mode     | Rel-15  | C022          | UEs supporting EN-DC FR2                                              |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.1.3        | EN-DC FR2 radio link monitoring out-of-sync test for PSCell configured with SSB-based RLM RS in DRX mode     | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                           |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.1.4        | EN-DC FR2 radio link monitoring in-sync test for PSCell configured with SSB-based RLM RS in DRX mode         | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                           |                        | PC1(NOTE 1)<br>PC3         |                            |

| Clause       | TC Title                                                                                                                                     | Release | Applicability |                                                                                                    | Additional Information | Branch                     | Subtest Selection Criteria |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------|------------------------|----------------------------|----------------------------|
|              |                                                                                                                                              |         | Condition     | Comment                                                                                            |                        |                            |                            |
| 5.5.1.5      | EN-DC FR2 radio link monitoring out-of-sync test for PSCell configured with CSI-RS-based RLM RS in non-DRX mode                              | Rel-15  | C161          | UEs supporting EN-DC FR2 and CSI-RS based RLM                                                      |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.5.1.6      | EN-DC FR2 radio link monitoring in-sync test for PSCell configured with CSI-RS-based RLM RS in non-DRX mode                                  | Rel-15  | C161          | UEs supporting EN-DC FR2 and CSI-RS based RLM                                                      |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.5.1.7      | EN-DC FR2 radio link monitoring out-of-sync test for PSCell configured with CSI-RS-based RLM RS in DRX mode                                  | Rel-15  | C162          | UEs supporting EN-DC FR2, CSI-RS-based RLM and long DRX cycle                                      |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.1.8      | EN-DC FR2 radio link monitoring in-sync test for PSCell configured with CSI-RS-based RLM RS in DRX mode                                      | Rel-15  | C162          | UEs supporting EN-DC FR2, CSI-RS-based RLM and long DRX cycle                                      |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.1.9      | EN-DC FR2 radio link monitoring UE scheduling restrictions                                                                                   | Rel-15  | C022n         | UEs supporting EN-DC FR2 and PDCCH monitoring in any symbol of the slot (with or without span gap) |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.1.10     | EN-DC FR2 Radio Link Monitoring Out-of-sync Test for PSCell configured with SSB-based RLM RS for UE fulfilling relaxed measurement criterion | Rel-17  | C022e         | UEs supporting EN-DC FR2, long DRX cycle and RLM relaxed measurements                              |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.5.2</b> | <b>Interruption</b>                                                                                                                          |         |               |                                                                                                    |                        |                            |                            |
| 5.5.2.1      | EN-DC FR2 interruptions at transitions between active and non-active during DRX in synchronous EN-DC                                         | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                                                        |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.2.2      | EN-DC FR2 interruptions at transitions between active and non-active during DRX in asynchronous EN-DC                                        | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                                                        |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.2.3      | EN-DC FR2 interruptions during measurements on deactivated NR SCC in synchronous EN-DC                                                       | Rel-15  | C180          | UEs supporting EN-DC FR2 and 2DL CA in NR                                                          |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.2.4      | EN-DC FR2 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC                                                      | Rel-15  | C180          | UEs supporting EN-DC FR2 and 2DL CA in NR                                                          |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.2.5      | EN-DC FR2 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC                                                  | FFS     | FFS           | FFS                                                                                                |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.5.2.6      | EN-DC FR2 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC                                                 | FFS     | FFS           | FFS                                                                                                |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |

| Clause       | TC Title                                                                                                        | Release | Applicability |                                                                       | Additional Information | Branch                     | Subtest Selection Criteria |
|--------------|-----------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------|------------------------|----------------------------|----------------------------|
|              |                                                                                                                 |         | Condition     | Comment                                                               |                        |                            |                            |
| 5.5.2.7      | EN-DC FR2 interruptions at E-UTRA SRS carrier based switching                                                   | Rel-16  | N/A           | Not recommended due to LTE – FR2 testability issue                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.5.2.8      | EN-DC FR2 interruptions at NR SRS carrier based switching                                                       | Rel-16  | N/A           | Not recommended due to LTE – FR2 testability issue                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| <b>5.5.3</b> | <b>SCell activation and deactivation delay</b>                                                                  |         |               |                                                                       |                        |                            |                            |
| 5.5.3.1      | EN-DC FR2 SCell activation and deactivation intra-band in non-DRX                                               | Rel-15  | C180          | UEs supporting EN-DC FR2 and 2DL CA in NR                             |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.3.7      | EN-DC FR2 direct SCell activation at SCell addition of known SCell                                              | Rel-16  | C242          | UEs supporting EN-DC FR2 and 2DL CA in NR and direct SCell activation |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.3.8      | EN-DC FR2 fast SCell Activation of SCell in FR2 intra-band                                                      | Rel-17  | C269          | UEs supporting EN-DC FR2 and 2DL CA in NR and direct SCell activation |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.3.13     | EN-DC FR2 Addition and Release Delay of NR PSCell                                                               | Rel-17  | C268a         | UEs supporting EN-DC FR2 and conditional PSCell addition in EN-DC     |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| <b>5.5.4</b> | <b>UE UL carrier RRC reconfiguration delay</b>                                                                  |         |               |                                                                       |                        |                            |                            |
| <b>5.5.5</b> | <b>Beam failure detection and link recovery procedures</b>                                                      |         |               |                                                                       |                        |                            |                            |
| 5.5.5.1      | EN-DC FR2 SSB-based beam failure detection and link recovery in non-DRX                                         | Rel-15  | C022          | UEs supporting EN-DC FR2                                              |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.5.2      | EN-DC FR2 SSB-based beam failure detection and link recovery in DRX                                             | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                           |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.5.3      | EN-DC FR2 CSI-RS-based beam failure detection and link recovery in non-DRX                                      | Rel-15  | C161          | UEs supporting EN-DC FR2 and CSI-RS-based RLM                         |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.5.4      | EN-DC FR2 CSI-RS-based beam failure detection and link recovery in DRX                                          | Rel-15  | C162          | UEs supporting EN-DC FR2 and long DRX cycle and CSI-RS-based RLM      |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.5.5      | EN-DC FR2 scheduling available restriction during SSB-based beam failure detection and link recovery in non-DRX | Rel-15  | C022          | UEs supporting EN-DC FR2                                              |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.5.6      | EN-DC FR2 CSI-RS-based BFD and LR for SCell in non-DRX                                                          | Rel-16  | C149          | UEs supporting EN-DC FR2 and CSI-RS based BFR on SCell                |                        | PC1(NOTE 1)<br>PC3         |                            |

| Clause         | TC Title                                                                                                                 | Release | Applicability |                                                                                                                                                                              | Additional Information | Branch                     | Subtest Selection Criteria |
|----------------|--------------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------|----------------------------|
|                |                                                                                                                          |         | Condition     | Comment                                                                                                                                                                      |                        |                            |                            |
| 5.5.5.7        | EN-DC FR2 SCell CSI-RS-based beam failure detection and link recovery in DRX                                             | Rel-16  | C150          | UEs supporting EN-DC FR2 and long DRX cycle and CSI-RS based BFR on SCell                                                                                                    |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.5.8        | EN-DC FR2 CSI-RS-based PSCell TRP specific Beam Failure Detection and Link Recovery in DRX mode                          | Rel-17  | C162a         | UEs supporting TRP specific EN-DC FR2 and long DRX cycle and CSI-RS-based RLM                                                                                                |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.5.9        | EN-DC FR2 SSB-based beam failure detection and link recovery in DRX mode for UE fulfilling relaxed measurement criterion | Rel-17  | C320          | UEs supporting EN-DC FR2 and long DRX cycle and BFD relaxation criteria <i>bfd-Relaxation-r17</i>                                                                            |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.5.6</b>   | <b>Active BWP switch delay</b>                                                                                           |         |               |                                                                                                                                                                              |                        |                            |                            |
| <b>5.5.6.1</b> | <b>DCI-based and timer-based active BWP switch</b>                                                                       |         |               |                                                                                                                                                                              |                        |                            |                            |
| 5.5.6.1.1      | EN-DC FR2 DCI-based DL active BWP switch in non-DRX in synchronous EN-DC                                                 | FFS     | FFS           | FFS                                                                                                                                                                          |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.5.6.1.2      | EN-DC FR2 DCI-based DL active BWP switch with SCell in non-DRX in synchronous EN-DC                                      | Rel-15  | N/A           | Not recommended due to LTE – FR2 testability issue                                                                                                                           |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| <b>5.5.6.2</b> | <b>RRC-based active BWP switch</b>                                                                                       |         |               |                                                                                                                                                                              |                        |                            |                            |
| 5.5.6.2.1      | EN-DC FR2 RRC-based DL active BWP switch in non-DRX in synchronous EN-DC                                                 | Rel-15  | C065c         | UEs supporting EN-DC FR2 and (Support of BWP adaptation upto2 or upto4)                                                                                                      |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.5.7</b>   | <b>PSCell addition and release delay</b>                                                                                 |         |               |                                                                                                                                                                              |                        |                            |                            |
| 5.5.7.1        | EN-DC FR2 Addition and Release Delay of NR PSCell                                                                        | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                                                                                                     |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.5.8</b>   | <b>Active TCI state switch delay</b>                                                                                     |         |               |                                                                                                                                                                              |                        |                            |                            |
| 5.5.8.1        | EN-DC FR2 MAC-CE based active TCI state switch                                                                           | Rel-15  | C022m         | UEs supporting EN-DC FR2, maximum number of active TCI states per BWP greater than 1, and maximum number of simultaneously trackable TRS resource sets per CC greater than 1 |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |

| Clause        | TC Title                                                   | Release | Applicability |                                                                                                                                                                                                                                                                                                                                      | Additional Information | Branch                     | Subtest Selection Criteria |
|---------------|------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------|----------------------------|
|               |                                                            |         | Condition     | Comment                                                                                                                                                                                                                                                                                                                              |                        |                            |                            |
| 5.5.8.2       | EN-DC FR2 RRC based active TCI state switch                | Rel-15  | C022m         | UEs supporting EN-DC FR2, maximum number of active TCI states per BWP greater than 1, and maximum number of simultaneously trackable TRS resource sets per CC greater than 1                                                                                                                                                         |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| <b>5.5.11</b> | <b>Unified TCI state switch delay</b>                      |         |               |                                                                                                                                                                                                                                                                                                                                      |                        |                            |                            |
| 5.5.11.1      | EN-DC FR2 MAC-CE based active joint TCI state switch       | Rel-17  | C278          | UEs supporting EN-DC FR2, and unified TCI state operation with joint DL/UL TCI update for intra-cell beam management                                                                                                                                                                                                                 |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.11.2      | EN-DC FR2 MAC-CE based active uplink TCI state switch      | Rel-17  | C279          | UEs supporting EN-DC FR2, and unified TCI state operation with separate DL/UL TCI update for intra-cell beam management                                                                                                                                                                                                              |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.5.11.3      | EN-DC FR2 MAC-CE based active downlink TCI state switch    | Rel-17  | C280          | UEs supporting EN-DC FR2, and unified TCI state operation with separate DL/UL TCI update for intra-cell beam management, and supporting RRC configuration of additional PCI different from serving cell associated with the TCI state and/or QCL-info, and unified TCI with separate DL/UL TCI update for inter-cell beam management |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.5.12</b> | <b>PSCell activation and deactivation delay</b>            |         |               |                                                                                                                                                                                                                                                                                                                                      |                        |                            |                            |
| 5.5.12.1      | EN-DC FR2 PSCell activation and deactivation delay         | Rel-17  | C289          | UEs supporting EN-DC FR2 and activation and deactivation on SCG                                                                                                                                                                                                                                                                      |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.6</b>    | <b>Measurement procedures</b>                              |         |               |                                                                                                                                                                                                                                                                                                                                      |                        |                            |                            |
| <b>5.6.1</b>  | <b>Intra-frequency measurements</b>                        |         |               |                                                                                                                                                                                                                                                                                                                                      |                        |                            |                            |
| 5.6.1.1       | EN-DC FR2 event-triggered reporting without gap in non-DRX | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                                                                                                                                                                                                                                                             |                        | PC1<br>PC3                 |                            |
| 5.6.1.2       | EN-DC FR2 event-triggered reporting without gap in DRX     | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                                                                                                                                                                                                                                                                                          |                        | PC1<br>PC3                 |                            |
| 5.6.1.3       | EN-DC FR2 event-triggered reporting with gap in non-DRX    | Rel-15  | C163          | UEs supporting EN-DC FR2, CSI-RS-based RLM and BWP operation without bandwidth restriction                                                                                                                                                                                                                                           |                        | PC1<br>PC3                 |                            |

| Clause       | TC Title                                                                         | Release | Applicability |                                                                                                     | Additional Information | Branch                     | Subtest Selection Criteria |
|--------------|----------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------|------------------------|----------------------------|----------------------------|
|              |                                                                                  |         | Condition     | Comment                                                                                             |                        |                            |                            |
| 5.6.1.4      | EN-DC FR2 event-triggered reporting with gap in DRX                              | Rel-15  | C043a         | UEs supporting EN-DC FR2, long DRX cycle, CSI-RS based RLM and BWP operation without BW restriction |                        | PC1<br>PC3                 |                            |
| <b>5.6.2</b> | <b>Inter-frequency measurements</b>                                              |         |               |                                                                                                     |                        |                            |                            |
| 5.6.2.1      | EN-DC FR2-FR2 event-triggered reporting in non-DRX                               | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                            |                        | PC1(NOTE 1)<br>PC3         | Subtest 2: F014            |
| 5.6.2.2      | EN-DC FR2-FR2 event-triggered reporting in DRX                                   | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                                                         |                        | PC1(NOTE 1)<br>PC3         | Subtests 3, 4: F015        |
| 5.6.2.3      | EN-DC FR2-FR2 event-triggered reporting in non-DRX with SSB time index detection | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                            |                        | PC1(NOTE 1)<br>PC3         | Subtest 2: F014            |
| 5.6.2.4      | EN-DC FR2-FR2 event-triggered reporting in DRX with SSB time index detection     | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                                                         |                        | PC1(NOTE 1)<br>PC3         | Subtests 3, 4: F015        |
| 5.6.2.5      | EN-DC FR1-FR2 event-triggered reporting in non-DRX                               | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                  |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.6.2.6      | EN-DC FR1-FR2 event-triggered reporting in DRX                                   | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                  |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.6.2.7      | EN-DC FR1-FR2 event-triggered reporting in non-DRX with SSB time index detection | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                  |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| 5.6.2.8      | EN-DC FR1-FR2 event-triggered reporting in DRX with SSB time index detection     | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                  |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| <b>5.6.3</b> | <b>L1-RSRP for beam reporting</b>                                                |         |               |                                                                                                     |                        |                            |                            |
| 5.6.3.1      | EN-DC FR2 SSB-based L1-RSRP measurement in non-DRX                               | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                            |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.6.3.2      | EN-DC FR2 SSB-based L1-RSRP measurement in DRX                                   | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                                                         |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.6.3.3      | EN-DC FR2 CSI-RS-based L1-RSRP measurement in non-DRX                            | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                            |                        | PC1(NOTE 1)<br>PC3         |                            |

| Clause       | TC Title                                                                    | Release | Applicability |                                                                                                                             | Additional Information | Branch                     | Subtest Selection Criteria |
|--------------|-----------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------|----------------------------|
|              |                                                                             |         | Condition     | Comment                                                                                                                     |                        |                            |                            |
| 5.6.3.4      | EN-DC FR2 CSI-RS-based L1-RSRP measurement in DRX                           | Rel-15  | C022a         | UEs supporting EN-DC FR2 and long DRX cycle                                                                                 |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.6.4.1      | EN-DC FR2 SRS-RSRP measurement in non-DRX                                   | Rel-16  | C022b         | UEs supporting EN-DC FR2 and SRS-RSRP measurements                                                                          |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.6.3</b> | <b>L1-SINR measurement for beam reporting</b>                               |         |               |                                                                                                                             |                        |                            |                            |
| 5.6.6.1      | EN-DC FR2 CSI-RS based CMR and no dedicated IMR L1-SINR measurement in DRX  | Rel-16  | C141a         | UEs supporting EN-DC FR2 and long DRX cycle and L1-SINR measurement based on CSI-RS as CMR without dedicated IMR configured |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.6.6.2      | EN-DC FR2 SSB based CMR and dedicated IMR L1-SINR measurement in non-DRX    | Rel-16  | C142a         | UEs supporting EN-DC FR2 and L1-SINR measurement based on SSB as CMR and dedicated CSI-RS as IMR                            |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.6.6.3      | EN-DC FR2 CSI-RS based CMR and dedicated IMR L1-SINR measurement in non-DRX | Rel-16  | C143a         | UEs supporting EN-DC FR2 and L1-SINR measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR                         |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.6.7</b> | <b>CSI-RS based measurement</b>                                             |         |               |                                                                                                                             |                        |                            |                            |
| 5.6.7.1      | EN-DC event triggered reporting test without gap under non-DRX              | Rel-16  | C350          | UEs supporting EN-DC FR2 and CSI-RS based RSRP and RSRQ                                                                     |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.6.8.1      | EN-DC event triggered reporting tests for NR FR2 cell when DRX is used      | Rel-16  | C351          | UEs supporting EN-DC FR2 and long DRX cycle and CSI-RS based RSRP and RSRQ                                                  |                        | PC1(NOTE 1)<br>PC3         |                            |
| <b>5.7</b>   | <b>Measurement performance requirements</b>                                 |         |               |                                                                                                                             |                        |                            |                            |
| <b>5.7.1</b> | <b>SS-RSRP</b>                                                              |         |               |                                                                                                                             |                        |                            |                            |
| 5.7.1.1      | EN-DC FR2 SS-RSRP measurement accuracy                                      | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                                                    |                        | PC1<br>PC3                 |                            |
| 5.7.1.2      | EN-DC FR2-FR2 SS-RSRP measurement accuracy                                  | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                                                    |                        | PC1(NOTE 1)<br>PC3         |                            |
| 5.7.1.3      | EN-DC FR1-FR2 SS-RSRP measurement accuracy                                  | Rel-15  | N/A           | Not recommended due to E-UTRA/FR1 – FR2 testability issue                                                                   |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                            |
| <b>5.7.2</b> | <b>SS-RSRQ</b>                                                              |         |               |                                                                                                                             |                        |                            |                            |
| 5.7.2.1      | EN-DC FR2 SS-RSRQ measurement accuracy                                      | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                                                    |                        | PC1(NOTE 1)<br>PC3         |                            |

| Clause       | TC Title                                                                                                                            | Release | Applicability |                                                                                                          | Additional Information | Branch             | Subtest Selection Criteria |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------------|------------------------|--------------------|----------------------------|
|              |                                                                                                                                     |         | Condition     | Comment                                                                                                  |                        |                    |                            |
| 5.7.2.2      | EN-DC FR2-FR2 SS-RSRQ measurement accuracy                                                                                          | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                                 |                        | PC1(NOTE 1)<br>PC3 |                            |
| <b>5.7.3</b> | <b>SS-SINR</b>                                                                                                                      |         |               |                                                                                                          |                        |                    |                            |
| 5.7.3.1      | EN-DC FR2 SS-SINR measurement accuracy                                                                                              | Rel-15  | C069          | UEs supporting EN-DC FR2 and SS-SINR-meas                                                                |                        | PC1(NOTE 1)<br>PC3 |                            |
| 5.7.3.2      | EN-DC FR2-FR2 SS-SINR measurement accuracy                                                                                          | Rel-15  | C069          | UEs supporting EN-DC FR2 and SS-SINR-meas                                                                |                        | PC1(NOTE 1)<br>PC3 |                            |
| <b>5.7.4</b> | <b>L1-RSRP</b>                                                                                                                      |         |               |                                                                                                          |                        |                    |                            |
| 5.7.4.1      | EN-DC FR2 SSB based L1-RSRP measurement accuracy                                                                                    | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                                 |                        | PC1(NOTE 1)<br>PC3 |                            |
| 5.7.4.2      | EN-DC FR2 CSI-RS based L1-RSRP measurement accuracy                                                                                 | Rel-15  | C022          | UEs supporting EN-DC FR2                                                                                 |                        | PC1(NOTE 1)<br>PC3 |                            |
| 5.7.5.1      | EN-DC FR2 SRS-RSRP measurement accuracy                                                                                             | Rel-16  | C022b         | UEs supporting EN-DC FR2 and SRS-RSRP measurements                                                       |                        | PC1(NOTE 1)<br>PC3 |                            |
| <b>5.7.6</b> | <b>L1-SINR measurement for beam reporting</b>                                                                                       |         |               |                                                                                                          |                        |                    |                            |
| 5.7.6.1      | EN-DC FR2 CSI-RS based CMR and no dedicated IMR configured and CSI-RS resource set with repetition off L1-SINR measurement accuracy | Rel-16  | C141b         | UEs supporting EN-DC FR2 and L1-SINR measurement based on CSI-RS as CMR without dedicated IMR configured |                        | PC1(NOTE 1)<br>PC3 |                            |
| 5.7.6.2      | EN-DC FR2 SSB based CMR and dedicated IMR L1-SINR absolute measurement accuracy                                                     | Rel-16  | C142a         | UEs supporting EN-DC FR2 and L1-SINR measurement based on SSB as CMR and dedicated CSI-RS as IMR         |                        | PC1(NOTE 1)<br>PC3 |                            |
| 5.7.6.3      | EN-DC FR2 CSI-RS based CMR and dedicated IMR L1-SINR measurement accuracy                                                           | Rel-16  | C143a         | UEs supporting EN-DC FR2 and L1-SINR measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR      |                        | PC1(NOTE 1)<br>PC3 |                            |
| <b>5.7.7</b> | <b>CSI-RSRP</b>                                                                                                                     |         |               |                                                                                                          |                        |                    |                            |
| 5.7.7.1      | EN-DC intra-frequency case measurement accuracy with FR2 serving cell and FR2 target cell                                           | Rel-16  | C350          | UEs supporting EN-DC FR2 and CSI-RS based RSRP and RSRQ                                                  |                        | PC1(NOTE 1)<br>PC3 |                            |
| 5.7.7.2      | EN-DC inter-frequency case measurement accuracy with FR2 serving cell and FR2 target cell                                           | Rel-16  | C350          | UEs supporting EN-DC FR2 and CSI-RS based RSRP and RSRQ                                                  |                        | PC1(NOTE 1)<br>PC3 |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title | Release | Applicability |         | Additional Information | Branch | Subtest Selection Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|---------------|---------|------------------------|--------|----------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                          |          |         | Condition     | Comment |                        |        |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |          |         |               |         |                        |        |                            |
| NOTE 2: Void.                                                                                                                                                                                                                                                                                                                                                                            |          |         |               |         |                        |        |                            |
| NOTE 3: Void.                                                                                                                                                                                                                                                                                                                                                                            |          |         |               |         |                        |        |                            |

Table 4.2-2a: Void

**Table 4.2-3: Applicability of RRM NR SA FR1 conformance test cases, ref. TS 38.533 [5]**

| Clause       | TC Title                                                                                                                        | Release | Applicability |                                                                             | Additional Information | Branch            | Subtest Selection Criteria |
|--------------|---------------------------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------|------------------------|-------------------|----------------------------|
|              |                                                                                                                                 |         | Condition     | Comment                                                                     |                        |                   |                            |
| <b>6.1</b>   | <b>RRC_IDLE state mobility</b>                                                                                                  |         |               |                                                                             |                        |                   |                            |
| <b>6.1.1</b> | <b>NR cell re-selection</b>                                                                                                     |         |               |                                                                             |                        |                   |                            |
| 6.1.1.1      | NR SA FR1 cell re-selection                                                                                                     | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.1.2      | NR SA FR1-FR1 cell re-selection                                                                                                 | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.1.3      | NR SA FR1 cell re-selection for UE fulfilling low mobility relaxed measurement criterion                                        | Rel-16  | C093          | UEs supporting 5GS NR SA FR1 and relaxed RRM measurement                    |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.1.4      | NR SA FR1 cell re-selection for UE fulfilling not-at-cell edge relaxed measurement criterion                                    | Rel-16  | C093          | UEs supporting 5GS NR SA FR1 and relaxed RRM measurement                    |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.1.5      | NR SA FR1-FR1 cell re-selection for UE fulfilling low mobility relaxed measurement criterion                                    | Rel-16  | C093          | UEs supporting 5GS NR SA FR1 and relaxed RRM measurement                    |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.1.6      | NR SA FR1-FR1 cell re-selection for UE fulfilling not-at-cell edge relaxed measurement criterion                                | Rel-16  | C093          | UEs supporting 5GS NR SA FR1 and relaxed RRM measurement                    |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.1.7      | NR SA FR1 cell re-selection for UE configured with highSpeedMeasFlag-r16                                                        | Rel-16  | C052          | UEs supporting 5GS NR SA FR1 and measurement enhancements in HST            |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.1.8      | NR SA FR1-FR1 Cell reselection for UE configured with highSpeedMeasInterFreq-r17                                                | Rel-17  | C052a         | UEs supporting 5GS NR SA FR1 and inter-freq measurement enhancements in HST |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.1.9      | NR SA FR1 cell reselection to intra-frequency NR case for UE operating on a cell with less than 5MHz BW                         | Rel-18  | C342          | UEs supporting 5GS NR SA FR1 and bandwidth of less than 5 MHz               |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.1.2</b> | <b>NR – E-UTRA cell re-selection</b>                                                                                            |         |               |                                                                             |                        |                   |                            |
| 6.1.2.1      | NR SA FR1 – E-UTRA cell re-selection to higher priority E-UTRA                                                                  | Rel-15  | C025          | UEs supporting 5GS NR SA FR1 and E-UTRA                                     |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.2.2      | NR SA FR1 – E-UTRA cell re-selection to lower priority E-UTRA                                                                   | Rel-15  | C025          | UEs supporting 5GS NR SA FR1 and E-UTRA                                     |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.2.3      | NR SA FR1 – E-UTRA cell re-selection to lower priority E-UTRAN for UE fulfilling low mobility relaxed measurement criterion     | Rel-16  | C094          | UEs supporting 5GS NR SA FR1 and E-UTRA and relaxed RRM measurement         |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.1.2.4      | NR SA FR1 – E-UTRA cell re-selection to lower priority E-UTRAN for UE fulfilling not-at-cell edge relaxed measurement criterion | Rel-16  | C094          | UEs supporting 5GS NR SA FR1 and E-UTRA and relaxed RRM measurement         |                        | 2Rx<br>4Rx<br>8Rx |                            |

| Clause       | TC Title                                                                                                   | Release | Applicability |                                                                                              | Additional Information               | Branch            | Subtest Selection Criteria |
|--------------|------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------|--------------------------------------|-------------------|----------------------------|
|              |                                                                                                            |         | Condition     | Comment                                                                                      |                                      |                   |                            |
| 6.1.2.5      | NR SA FR1 – E-UTRA cell re-selection to lower priority E-UTRA for UE configured with highSpeedMeasFlag-r16 | Rel-16  | C025b         | UEs supporting 5GS NR SA FR1 and E-UTRA and E-UTRA inter-RAT measurement enhancements in HST |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.2</b>   | <b>RRC_INACTIVE state mobility</b>                                                                         |         |               |                                                                                              |                                      |                   |                            |
| 6.2.1        | NR SA FR1 Configured Grant based Small Data Transmissions (CG-SDT)                                         | Rel-17  | C001m         | UEs supporting 5GS NR SA FR1, CG-SDT and long DRX cycle                                      |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.3</b>   | <b>RRC_CONNECTED state mobility</b>                                                                        |         |               |                                                                                              |                                      |                   |                            |
| <b>6.3.1</b> | <b>Handover</b>                                                                                            |         |               |                                                                                              |                                      |                   |                            |
| 6.3.1.1      | NR SA FR1 handover with known target cell                                                                  | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                 |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.2      | NR SA FR1 handover with unknown target cell                                                                | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                 |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.3      | NR SA FR1-FR1 handover with unknown target cell                                                            | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                 |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.4      | NR SA FR1 – E-UTRA handover with known target cell                                                         | Rel-15  | C025          | UEs supporting 5GS NR SA FR1 and E-UTRA                                                      |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.5      | NR SA FR1 – E-UTRA handover with unknown target cell                                                       | Rel-15  | C025          | UEs supporting 5GS NR SA FR1 and E-UTRA                                                      |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.6      | NR SA FR1 – UTRAN FDD handover with known target cell                                                      | Rel-16  | C096          | UEs supporting 5GS NR SA FR1 and UTRAN FDD                                                   |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.7      | NR SA FR1 synchronous DAPS handover                                                                        | Rel-16  | C101          | UEs supporting 5GS NR SA FR1 and intra-frequency DAPS handover                               |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.8      | NR SA FR1 asynchronous DAPS handover                                                                       | Rel-16  | C102          | UEs supporting 5GS NR SA FR1 and intra-frequency async DAPS handover                         |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.9      | NR SA FR1 Intra-band inter-frequency synchronous DAPS handover                                             | Rel-16  | C107          | UEs supporting 5GS NR SA FR1 and inter-frequency DAPS handover                               |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.10     | NR SA FR1 Intra-band inter-frequency asynchronous DAPS handover                                            | Rel-16  | C108          | UEs supporting 5GS NR SA FR1 and inter-frequency async DAPS handover                         |                                      | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.11     | NR SA FR1 Inter-band inter-frequency synchronous DAPS handover                                             | Rel-16  | C107          | UEs supporting 5GS NR SA FR1 and inter-frequency DAPS handover                               | For test configuration 1, 2, 4, 5, 9 | 2Rx<br>4Rx<br>8Rx |                            |

| Clause         | TC Title                                                                                       | Release | Applicability |                                                                                                                                                     | Additional Information                                            | Branch            | Subtest Selection Criteria |
|----------------|------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------|----------------------------|
|                |                                                                                                |         | Condition     | Comment                                                                                                                                             |                                                                   |                   |                            |
|                |                                                                                                |         | C109          | UEs supporting 5GS NR SA FR1 and inter-frequency DAPS handover and supporting different SCSs in source Pcell and inter-frequency target Pcell       | For test configuration 3, 6, 7, 8                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.12       | NR SA FR1 Inter-band inter-frequency asynchronous DAPS handover                                | Rel-16  | C108          | UEs supporting 5GS NR SA FR1 and inter-frequency async DAPS handover                                                                                | For test configuration 1, 2, 4, 5, 9                              | 2Rx<br>4Rx<br>8Rx |                            |
|                |                                                                                                |         | C110          | UEs supporting 5GS NR SA FR1 and inter-frequency async DAPS handover and supporting different SCSs in source Pcell and inter-frequency target Pcell | For test configuration 3, 6, 7, 8                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.1.18       | NR SA FR1 Intra-frequency handover for unknown target cell operating with 12 PRB SSB bandwidth | Rel-18  | C343          | UEs supporting 5GS NR SA FR1 and bandwidth of less than 5 MHz                                                                                       |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.3.2</b>   | <b>RRC connection mobility control</b>                                                         |         |               |                                                                                                                                                     |                                                                   |                   |                            |
| <b>6.3.2.1</b> | <b>RRC re-establishment</b>                                                                    |         |               |                                                                                                                                                     |                                                                   |                   |                            |
| 6.3.2.1.1      | NR SA FR1 RRC re-establishment                                                                 | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                        |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.2.1.2      | NR SA FR1 - FR1 RRC re-establishment                                                           | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                        |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.2.1.3      | NR SA FR1 RRC re-establishment without serving cell timing                                     | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                        |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.3.2.2</b> | <b>Random access</b>                                                                           |         |               |                                                                                                                                                     |                                                                   |                   |                            |
| 6.3.2.2.1      | NR SA FR1 contention based random access                                                       | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                        | Test execution not necessary if test 4.3.2.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.3.2.2.2      | NR SA FR1 non-contention based random access                                                   | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                        | Test execution not necessary if test 4.3.2.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx | Subtest 2: F001            |
| 6.3.2.2.3      | NR SA FR1 2-step contention based random access                                                | Rel-16  | C159          | UEs supporting 5GS NR SA FR1 and 2-step RACH                                                                                                        | Test execution not necessary if test 4.3.2.2.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |

| Clause         | TC Title                                                                                                     | Release | Applicability |                                                                                                                                                                                                                                                                                                                                                                                                                 | Additional Information                                            | Branch            | Subtest Selection Criteria   |
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|                |                                                                                                              |         | Condition     | Comment                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                   |                   |                              |
| 6.3.2.2.4      | NR SA FR1 2-step non-contention based random access                                                          | Rel-16  | C159          | UEs supporting 5GS NR SA FR1 and 2-step RACH                                                                                                                                                                                                                                                                                                                                                                    | Test execution not necessary if test 4.3.2.2.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                              |
| <b>6.3.2.3</b> | <b>RRC connection release with redirection</b>                                                               |         |               |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                   |                   |                              |
| 6.3.2.3.1      | NR SA FR1 RRC connection release with redirection                                                            | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                                                                                                                                                                                                                                                                                    |                                                                   | 2Rx<br>4Rx<br>8Rx |                              |
| 6.3.2.3.2      | NR SA FR1 - E-UTRA RRC connection release with redirection                                                   | Rel-15  | C025          | UEs supporting 5GS NR SA FR1 and E-UTRA                                                                                                                                                                                                                                                                                                                                                                         |                                                                   | 2Rx<br>4Rx<br>8Rx |                              |
| <b>6.3.2.4</b> | <b>LTM PDCCH-order Random Access</b>                                                                         |         |               |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                   |                   |                              |
| 6.3.2.4.1      | NR SA FR1 PDCCH-order RACH on neighbor cell when RACH BW is within active UL BWP                             | Rel-18  | C364          | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, MAC-CE activated joint LTM TCI states, RACH-less LTM with dynamic grant, intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s), interruptions caused by PDCCH order                                                                                                                                       |                                                                   | 2Rx<br>4Rx<br>8Rx | Test 2: F043<br>Test 3: F044 |
| 6.3.2.4.2      | NR SA FR1-FR1 PDCCH-ordered RACH to an candidate cell for LTM                                                | Rel-18  | C366          | UEs supporting 5GS NR SA FR1, inter-frequency LTM for MCG with RACH, MAC-CE activated joint LTM TCI states, RACH-less LTM with dynamic grant, inter-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s), interruptions caused by PDCCH order and Support simultaneous transmission to handle the overlap between UL transmission on serving cell(s) and PRACH on candidate cell(s) |                                                                   | 2Rx<br>4Rx<br>8Rx | Test 2: F047                 |
| 6.3.2.4.3      | NR SA FR1 PDCCH-order RACH on neighbor cell without L1-RSRP measurement when RACH BW is within active UL BWP | Rel-18  | C365          | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, MAC-CE activated joint LTM TCI states, RACH-less LTM with dynamic grant, interruptions caused by PDCCH order                                                                                                                                                                                                                               |                                                                   | 2Rx<br>4Rx<br>8Rx | Test 2: F045<br>Test 3: F046 |
| <b>6.3.3</b>   | <b>Conditional handover</b>                                                                                  |         |               |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                   |                   |                              |

| Clause       | TC Title                                                           | Release | Applicability |                                                                                                                                                                                                                                        | Additional Information | Branch            | Subtest Selection Criteria   |
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|              |                                                                    |         | Condition     | Comment                                                                                                                                                                                                                                |                        |                   |                              |
| 6.3.3.1      | NR SA FR1 conditional handover                                     | Rel-16  | C105          | UEs supporting 5GS NR SA FR1 and Conditional handover                                                                                                                                                                                  |                        | 2Rx<br>4Rx<br>8Rx |                              |
| 6.3.3.2      | NR SA FR1-FR1 conditional handover                                 | Rel-16  | C105          | UEs supporting 5GS NR SA FR1 and Conditional handover                                                                                                                                                                                  |                        | 2Rx<br>4Rx<br>8Rx |                              |
| 6.3.3.3      | SA FR1 conditional handover including target MCG and target SCG    | Rel-18  | C395          | UEs supporting 5GS NR-DC SA FR1 and Conditional handover                                                                                                                                                                               |                        | 2Rx<br>4Rx<br>8Rx |                              |
| 6.3.3.4      | SA FR1 conditional handover including target MCG and candidate SCG | Rel-18  | C396          | UEs supporting 5GS NR-DC SA FR1 and Conditional handover with Conditional PSCell Change                                                                                                                                                |                        | 2Rx<br>4Rx<br>8Rx |                              |
| 6.3.3.6      | NR SA FR1 Intra-frequency NES triggering conditional handover      | Rel-18  | C105a         | UEs supporting 5GS NR SA FR1 and NES-based conditional handover                                                                                                                                                                        |                        | 2Rx<br>4Rx<br>8Rx |                              |
| 6.3.3.7      | NR SA FR1 Inter-frequency NES-based conditional handover           | Rel-18  | C105a         | UEs supporting 5GS NR SA FR1 and NES-based conditional handover                                                                                                                                                                        |                        | 2Rx<br>4Rx<br>8Rx |                              |
| <b>6.3.4</b> | <b>LTM PCell Switch</b>                                            |         |               |                                                                                                                                                                                                                                        |                        |                   |                              |
| 6.3.4.1      | NR SA FR1 RACH-based PCell switch from FR1 to FR1                  | Rel-18  | C362          | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH and intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s)                                                                         |                        | 2Rx<br>4Rx<br>8Rx | Test 1: F051<br>Test 2: F032 |
| 6.3.4.2      | NR SA FR1-FR1 RACH based LTM PCell switch from FR1 to FR1          | Rel-18  | C363          | UEs supporting 5GS NR SA FR1, inter-frequency LTM for MCG with RACH without NR-DC configuration and inter-frequency L1-RSRP measurement and reporting with measurement gaps based on SSB(s) of candidate cell(s)                       |                        | 2Rx<br>4Rx<br>8Rx | Test 1: F051<br>Test 2: F032 |
| 6.3.4.3      | NR SA FR1 RACH-less PCell switch from FR1 to FR1                   | Rel-18  | C357          | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, RACH-less LTM with dynamic grant, TA indication in cell switch command and intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s) |                        | 2Rx<br>4Rx<br>8Rx | Test 1: F051<br>Test 2: F032 |

| Clause       | TC Title                                                                                                    | Release | Applicability |                                                                                                                                                                | Additional Information                                          | Branch            | Subtest Selection Criteria                                       |
|--------------|-------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------|------------------------------------------------------------------|
|              |                                                                                                             |         | Condition     | Comment                                                                                                                                                        |                                                                 |                   |                                                                  |
| 6.3.4.4      | NR SA FR1 RACH-less PCell switch from FR1 to FR1 without L1-RSRP measurement                                | Rel-18  | C358          | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, RACH-less LTM with dynamic grant and TA indication in cell switch command                 |                                                                 | 2Rx<br>4Rx<br>8Rx | Test 1: F051<br>Test 2: F032                                     |
| <b>6.3.5</b> | <b>LTM PSCell Switch</b>                                                                                    |         |               |                                                                                                                                                                |                                                                 |                   |                                                                  |
| 6.3.5.1      | NR SA FR1 RACH-based Intra-frequency LTM PSCell switch                                                      | Rel-18  | C362a         | UEs supporting 5GS NR SA FR1, intra-frequency LTM for SCG with RACH and intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s) | NOTE 1                                                          | 2Rx<br>4Rx<br>8Rx | Test 1A: F051<br>Test 1B: F031<br>Test 2A: F032<br>Test 2B: F033 |
| <b>6.4</b>   | <b>Timing</b>                                                                                               |         |               |                                                                                                                                                                |                                                                 |                   |                                                                  |
| <b>6.4.1</b> | <b>UE transmit timing333</b>                                                                                |         |               |                                                                                                                                                                |                                                                 |                   |                                                                  |
| 6.4.1.1      | NR SA FR1 UE transmit timing accuracy                                                                       | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                                   | Test execution not necessary if test 4.4.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx | Subtest 2: F002                                                  |
| <b>6.4.2</b> | <b>UE timer accuracy</b>                                                                                    |         |               |                                                                                                                                                                |                                                                 |                   |                                                                  |
| <b>6.4.3</b> | <b>Timing advance</b>                                                                                       |         |               |                                                                                                                                                                |                                                                 |                   |                                                                  |
| 6.4.3.1      | NR SA FR1 timing advance adjustment accuracy                                                                | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                                   | Test execution not necessary if test 4.4.3.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                                                                  |
| <b>6.5</b>   | <b>Signalling characteristics</b>                                                                           |         |               |                                                                                                                                                                |                                                                 |                   |                                                                  |
| <b>6.5.1</b> | <b>Radio Link Monitoring</b>                                                                                |         |               |                                                                                                                                                                |                                                                 |                   |                                                                  |
| 6.5.1.1      | NR SA FR1 radio link monitoring out-of-sync test for PCell configured with SSB-based RLM RS in non-DRX mode | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                                   | Test execution not necessary if test 4.5.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                                                                  |
| 6.5.1.2      | NR SA FR1 radio link monitoring in-sync test for PCell configured with SSB-based RLM RS in non-DRX mode     | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                                   | Test execution not necessary if test 4.5.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                                                                  |
| 6.5.1.3      | NR SA FR1 radio link monitoring out-of-sync test for PCell configured with SSB-based RLM RS in DRX mode     | Rel-15  | C001b         | UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                                                                | Test execution not necessary if test 4.5.1.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                                                                  |
| 6.5.1.4      | NR SA FR1 radio link monitoring in-sync test for PCell configured with SSB-based RLM RS in DRX mode         | Rel-15  | C001b         | UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                                                                | Test execution not necessary if test 4.5.1.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                                                                  |

| Clause       | TC Title                                                                                                                                                      | Release | Applicability |                                                                                                                            | Additional Information                                          | Branch            | Subtest Selection Criteria |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------|----------------------------|
|              |                                                                                                                                                               |         | Condition     | Comment                                                                                                                    |                                                                 |                   |                            |
| 6.5.1.5      | NR SA FR1 radio link monitoring out-of-sync test for PCell configured with CSI-RS-based RLM RS in non-DRX mode                                                | Rel-15  | C037          | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM                                                                          | Test execution not necessary if test 4.5.1.5 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.1.6      | NR SA FR1 radio link monitoring in-sync test for PCell configured with CSI-RS-based RLM RS in non-DRX mode                                                    | Rel-15  | C037          | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM                                                                          | Test execution not necessary if test 4.5.1.6 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.1.7      | NR SA FR1 radio link monitoring out-of-sync test for PCell configured with CSI-RS-based RLM RS in DRX mode                                                    | Rel-15  | C037a         | UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and long DRX cycle                                                          | Test execution not necessary if test 4.5.1.7 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.1.8      | NR SA FR1 radio link monitoring in-sync test for PCell configured with CSI-RS-based RLM RS in DRX mode                                                        | Rel-15  | C037a         | UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and long DRX cycle                                                          | Test execution not necessary if test 4.5.1.8 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.1.9      | SA FR1 radio link monitoring out-of-sync Test for PCell configured with CSI-RS-based RLM for UE fulfilling relaxed measurement criterion                      | Rel-17  | C037b         | UEs supporting 5GS NR SA FR1 and long DRX cycle and CSI-RS-based RLM and RLM relaxation criteria <i>rlm-Relaxation-r17</i> |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.1.13     | NR SA FR1 radio Link Monitoring out-of-sync Test for PCell configured with SSB-based RLM RS in DRX mode for UE operating on a cell with less than 5MHz BW     | Rel-18  | C344          | UEs supporting 5GS NR SA FR1 and bandwidth of less than 5 MHz and long DRX cycle                                           |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.1.14     | NR SA FR1 radio Link Monitoring out-of-sync Test for PCell configured with SSB-based RLM RS in non-DRX mode for UE operating on a cell with less than 5MHz BW | Rel-18  | C343          | UEs supporting 5GS NR SA FR1 and bandwidth of less than 5 MHz                                                              |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.1.15     | NR SA FR1 radio link monitoring In-sync Test for PCell with 3MHz Channel Bandwidth configured with SSB-based RLM RS in non-DRX mode                           | Rel-18  | C343          | UEs supporting 5GS NR SA FR1 and bandwidth of less than 5 MHz                                                              |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.1.16     | NR SA FR1 radio link monitoring In-sync Test for PCell with 3MHz Channel Bandwidth configured with SSB-based RLM RS in DRX mode                               | Rel-18  | C344          | UEs supporting 5GS NR SA FR1 and bandwidth of less than 5 MHz and long DRX cycle                                           |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.2</b> | <b>Interruption</b>                                                                                                                                           |         |               |                                                                                                                            |                                                                 |                   |                            |
| 6.5.2.1      | NR SA FR1 interruptions during measurements on deactivated NR SCC                                                                                             | Rel-15  | C031          | UEs supporting 5GS NR SA FR1 and CA (2DL CA)                                                                               |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.2.2      | SA FR1 interruptions at NR SRS carrier based switching                                                                                                        | Rel-16  | C031d         | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and NR SRS carrier based switching                                            | Note 1                                                          | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.3</b> | <b>Scell activation and deactivation delay</b>                                                                                                                |         |               |                                                                                                                            |                                                                 |                   |                            |

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|--------------|---------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------|----------------------------|
|              |                                                                                                         |         | Condition     | Comment                                                                               |                                                                 |                   |                            |
| 6.5.3.1      | NR SA FR1 SCell activation and deactivation of known SCell in non-DRX for 160ms SCell measurement cycle | Rel-15  | C031          | UEs supporting 5GS NR SA FR1 and CA (2DL CA)                                          |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.3.2      | NR SA FR1 SCell activation and deactivation of known SCell in non-DRX for 640ms SCell measurement cycle | Rel-15  | C031          | UEs supporting 5GS NR SA FR1 and CA (2DL CA)                                          |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.3.3      | NR SA FR1 SCell activation and deactivation of unknown SCell in non-DRX                                 | Rel-15  | C031          | UEs supporting 5GS NR SA FR1 and CA (2DL CA)                                          |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.3.4      | NR SA FR1 direct SCell activation at SCell addition of known SCell                                      | Rel-16  | C244          | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and direct SCell activation              |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.3.5      | NR SA FR1 direct SCell activation at handover with known SCell                                          | Rel-16  | C244          | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and direct SCell activation              |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.3.10     | NR SA FR1 fast SCell Activation of known SCell in non-DRX for 160ms SCell measurement cycle             | Rel-17  | C270          | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and fast SCell activation                |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.3.11     | NR SA FR1 fast SCell Activation of known SCell in non-DRX for 640ms SCell measurement cycle             | Rel-17  | C270          | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and fast SCell activation                |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.3.15     | NR SA FR1 TRS based SCell Activation of SSB-less SCell in FR1 inter-band CA in non-DRX                  | Rel-18  | C244a         | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and direct SCell activation based on TRS | NOTE 1                                                          | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.3.16     | NR SA FR1 Inter-band SSB-less SCell Activation based on A-TRS                                           | Rel-18  | C270a         | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and fast SCell activation based on A-TRS |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.4</b> | <b>UE UL carrier RRC reconfiguration delay</b>                                                          |         |               |                                                                                       |                                                                 |                   |                            |
| 6.5.4.1      | NR SA FR1 UE UL carrier RRC reconfiguration delay                                                       | Rel-15  | C002          | UEs supporting 5GS NR SA FR1 and SUL                                                  | Test execution not necessary if test 4.5.4.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.5</b> | <b>Link recovery procedures</b>                                                                         |         |               |                                                                                       |                                                                 |                   |                            |
| 6.5.5.1      | NR SA FR1 SSB-based beam failure detection and link recovery in non-DRX                                 | Rel-15  | C084          | UEs supporting 5GS NR SA FR1 and link recovery                                        | Test execution not necessary if test 4.5.5.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.5.2      | NR SA FR1 SSB-based beam failure detection and link recovery in DRX                                     | Rel-15  | C084a         | UEs supporting 5GS NR SA FR1 and long DRX cycle and link recovery                     | Test execution not necessary if test 4.5.5.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |

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|                |                                                                                                                         |         | Condition     | Comment                                                                                                                                                    |                                                                 |                   |                            |
| 6.5.5.3        | NR SA FR1 CSI-RS-based beam failure detection and link recovery in non-DRX                                              | Rel-15  | C085          | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM and link recovery                                                                                        | Test execution not necessary if test 4.5.5.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.5.4        | NR SA FR1 CSI-RS-based beam failure detection and link recovery in DRX                                                  | Rel-15  | C085a         | UEs supporting 5GS NR SA FR1 and long DRX cycle and CSI-RS-based RLM and link recovery                                                                     | Test execution not necessary if test 4.5.5.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.5.5        | NR SA FR1 Scell CSI-RS-based beam failure detection and SSB-based link recovery in non-DRX                              | Rel-16  | C173          | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM and SSB-based link recovery on Scell                                                                     | Test execution not necessary if test 4.5.5.5 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.5.6        | NR SA FR1 Scell CSI-RS-based beam failure detection and SSB-based link recovery in DRX                                  | Rel-16  | C174          | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM and SSB-based link recovery on Scell and long DRX cycle                                                  | Test execution not necessary if test 4.5.5.6 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.5.7        | NR SA FR1 PCell TRP Specific CSI-RS-based Beam Failure Detection and Link Recovery in DRX                               | Rel-17  | C085b         | UEs supporting TRP specific 5GS NR SA FR1 and long DRX cycle and CSI-RS-based RLM and link recovery                                                        |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.5.8        | NR SA FR1 SSB-based beam failure detection and link recovery in non-DRX mode for a UE operating on a cell with 3 MHz BW | Rel-18  | C343          | UEs supporting 5GS NR SA FR1 and bandwidth of less than 5 MHz                                                                                              | NOTE 1                                                          | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.6</b>   | <b>Active BWP switch delay</b>                                                                                          |         |               |                                                                                                                                                            |                                                                 |                   |                            |
| <b>6.5.6.1</b> | <b>DCI-based and timer-based active BWP switch</b>                                                                      |         |               |                                                                                                                                                            |                                                                 |                   |                            |
| 6.5.6.1.1      | NR SA FR1-FR1 DCI-based DL active BWP switch in non-DRX                                                                 | Rel-15  | C066a         | UEs supporting 5GS NR SA FR1 and (DCI and timer based active BWP switching delay type1 or type2) and (Support of BWP adaptation upto2 or upto4) and 2DL CA |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.6.1.2      | NR SA FR1 DCI-based DL active BWP switch in non-DRX                                                                     | Rel-15  | C066          | UEs supporting 5GS NR SA FR1 and (DCI and timer based active BWP switching delay type1 or type2) and (Support of BWP adaptation upto2 or upto4)            |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.6.2</b> | <b>RRC-based active BWP switch</b>                                                                                      |         |               |                                                                                                                                                            |                                                                 |                   |                            |
| 6.5.6.2.1      | NR SA FR1 RRC-based DL active BWP switch in non-DRX                                                                     | Rel-15  | C066b         | UEs supporting 5GS NR SA FR1 and (Support of BWP adaptation upto2 or upto4)                                                                                |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.6.3</b> | <b>Simultaneous DCI-based and Timer-based Active BWP Switch on multiple CCs</b>                                         |         |               |                                                                                                                                                            |                                                                 |                   |                            |

| Clause         | TC Title                                                                                                                                                  | Release | Applicability |                                                                                                                         | Additional Information | Branch            | Subtest Selection Criteria |
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|                |                                                                                                                                                           |         | Condition     | Comment                                                                                                                 |                        |                   |                            |
| 6.5.6.3.1      | NR SA FR1-FR1 DCI-based DL active BWP switch in non-DRX                                                                                                   | Rel-16  | C066e         | UEs supporting 5GS NR SA FR1, incremental delay for DCI and timer based active BWP switching on multiple CCs and 3DL CA | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.6.4</b> |                                                                                                                                                           |         |               |                                                                                                                         |                        |                   |                            |
| <b>6.5.6.5</b> | <b>Simultaneous RRC-based Active BWP Switch on multiple CCs</b>                                                                                           |         |               |                                                                                                                         |                        |                   |                            |
| 6.5.6.5.1      | RRC based BWP switch on multiple CCs                                                                                                                      | Rel-16  | C066d         | UEs supporting 5GS NR SA FR1, incremental delay for DCI and timer based active BWP switching on multiple CCs and 2DL CA | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.7</b>   | <b>DL interruptions at switching between two uplink carriers</b>                                                                                          |         |               |                                                                                                                         |                        |                   |                            |
| 6.5.7.1        | NR SA FR1 DL Interruptions at switching between two uplink carriers in FDD-TDD CA                                                                         | Rel-16  | C051          | UEs supporting 5GS NR SA FR1 and Inter-band CA (2UL CA) and dynamic UL Tx switching                                     |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.7.2        | NR SA FR1 DL Interruptions at switching between two uplink carriers in TDD-TDD CA                                                                         | Rel-16  | C051a         | UEs supporting 5GS NR SA FR1 and Inter-band CA (2UL CA) and dynamic UL Tx switching                                     |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.7A</b>  | <b>NR SA FR1 DL interruptions at switching between two uplink carriers with two transmit antenna connectors</b>                                           |         |               |                                                                                                                         |                        |                   |                            |
| 6.5.7A.1       | NR SA FR1 DL interruptions at switching between two uplink carriers in FDD-TDD CA                                                                         | Rel-17  | C051b         | UEs supporting 5GS NR SA FR1 and Inter-band CA (2UL CA) and dynamic UL Tx switching                                     |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.7A.2       | NR SA FR1 DL interruptions at switching between two uplink carriers in TDD-TDD CA                                                                         | Rel-17  | C051c         | UEs supporting 5GS NR SA FR1 and Inter-band CA (2UL CA) and dynamic UL Tx switching                                     |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.7B</b>  | <b>DL interruptions at switching between one uplink band with one transmit antenna connector and one uplink band with two transmit antenna connectors</b> |         |               |                                                                                                                         |                        |                   |                            |
| 6.5.7B.1       | NR SA FR1 DL Interruptions at switching between two uplink bands in FDD-TDD CA                                                                            | Rel-17  | C051d         | UEs supporting 5GS NR SA FR1 and Inter-band/intra-band CA (3UL CA) and dynamic UL Tx switching                          |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.7B.2       | NR SA FR1 DL Interruptions at switching between two uplink bands in TDD-TDD CA                                                                            | Rel-17  | C051e         | UEs supporting 5GS NR SA FR1 and Inter-band/intra-band CA (3UL CA) and dynamic UL Tx switching                          |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.7C</b>  | <b>DL interruptions at switching between two uplink bands with two transmit antenna connectors</b>                                                        |         |               |                                                                                                                         |                        |                   |                            |

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|               |                                                                                                                     |         | Condition     | Comment                                                                                                                                                                                                 |                        |                   |                            |
| 6.5.7C.1      | NR SA FR1 DL interruptions at switching between two uplink bands with two transmit antenna connectors in FDD-TDD CA | Rel-17  | C051f         | UEs supporting 5GS NR SA FR1 and Inter-band/intra-band CA (3UL CA) and dynamic UL Tx switching                                                                                                          |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.7C.2      | NR SA FR1 DL interruptions at switching between two uplink bands with two transmit antenna connectors in TDD-TDD CA | Rel-17  | C051g         | UEs supporting 5GS NR SA FR1 and Inter-band/intra-band CA (3UL CA) and dynamic UL Tx switching                                                                                                          |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.7D</b> | <b>DL interruptions at UE switching across three or four uplink bands</b>                                           |         |               |                                                                                                                                                                                                         |                        |                   |                            |
| 6.5.7D.1      | NR SA FR1 DL interruptions at switching across three uplink bands in TDD-TDD CA for single TAG                      | Rel-18  | C338          | UEs supporting 5GS NR SA FR1, inter-band UL CA (three bands), dynamic UL Tx switching across up to 4 bands and simultaneous transmission and reception in TDD-TDD inter-band NR CA                      |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.7D.2      | NR SA FR1 DL interruptions at switching across four uplink bands in FDD-TDD CA for single TAG                       | Rel-18  | C339          | UEs supporting 5GS NR SA FR1, inter-band UL CA (four bands), dynamic UL Tx switching across up to 4 bands and simultaneous transmission and reception in FDD-TDD inter-band NR CA                       |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.7D.3      | NR SA FR1 DL interruptions at switching across three uplink bands in FDD-TDD CA for two TAGs                        | Rel-18  | C340          | UEs supporting 5GS NR SA FR1, inter-band UL CA (three bands), dynamic UL Tx switching across up to 4 bands, simultaneous transmission and reception in FDD-TDD inter-band NR CA and at least two TAGs   |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.5.7D.4      | NR SA FR1 DL interruptions at switching across four uplink bands in TDD-TDD CA for two TAGs                         | Rel-18  | C389          | UEs supporting 5GS NR SA FR1, inter-band UL CA (four bands), dynamic UL Tx switching across up to 4 bands and simultaneous transmission and reception in TDD-TDD inter-band NR CA and at least two TAGs |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.8</b>  | <b>UE specific CBW change</b>                                                                                       |         |               |                                                                                                                                                                                                         |                        |                   |                            |
| 6.5.8.1       | UE specific CBW change on PCell in FR1 in non-DRX                                                                   | Rel-16  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                                                                            |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.5.13</b> | <b>Active TCI state switch delay</b>                                                                                |         |               |                                                                                                                                                                                                         |                        |                   |                            |

| Clause       | TC Title                                                                                                | Release | Applicability |                                                                                                                                       | Additional Information                                          | Branch            | Subtest Selection Criteria |
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|              |                                                                                                         |         | Condition     | Comment                                                                                                                               |                                                                 |                   |                            |
| 6.5.13.1     | NR SA FR1 MAC-CE based joint TCI state switch for mDCI with two TA when RTD is larger than CP           | Rel-18  | C397          | UEs supporting 5GS NR SA FR1 and unified TCI with joint DL/UL TCI update for multi-DCI based multi-TRP                                | NOTE 1                                                          | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6</b>   | <b>Measurement procedures</b>                                                                           |         |               |                                                                                                                                       |                                                                 |                   |                            |
| <b>6.6.1</b> | <b>Intra-frequency measurements</b>                                                                     |         |               |                                                                                                                                       |                                                                 |                   |                            |
| 6.6.1.1      | NR SA FR1 event-triggered reporting without gap in non-DRX                                              | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                          | Test execution not necessary if test 4.6.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.2      | NR SA FR1 event-triggered reporting without gap in DRX                                                  | Rel-15  | C001b         | UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                                       | Test execution not necessary if test 4.6.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.3      | NR SA FR1 event-triggered reporting with gap in non-DRX                                                 | Rel-15  | C041          | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction                                     | Test execution not necessary if test 4.6.1.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.4      | NR SA FR1 event-triggered reporting with gap in DRX                                                     | Rel-15  | C041a         | UEs supporting 5GS NR SA FR1, CSI-RS-based RLM, BWP operation without bandwidth restriction and long DRX cycle                        | Test execution not necessary if test 4.6.1.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.5      | NR SA FR1 event-triggered reporting without gap in non-DRX with SSB index reading                       | Rel-15  | C024          | UEs supporting 5GS NR FDD SA FR1                                                                                                      | Test execution not necessary if test 4.6.1.5 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.6      | NR SA FR1 event-triggered reporting with gap in non-DRX with SSB index reading                          | Rel-15  | C041b         | UEs supporting 5GS NR FDD SA FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction                                 | Test execution not necessary if test 4.6.1.6 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.7      | NR SA FR1 event-triggered reporting without gap in DRX for UE configured with highSpeedMeasFlag-r16     | Rel-16  | C052          | UEs supporting 5GS NR SA FR1 and measurement enhancements in HST                                                                      | Test execution not necessary if test 4.6.1.7 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.8      | NR SA FR1 event triggered reporting without gap in DRX for UE configured with highSpeedMeasCA-Scell-r17 | Rel-17  | C052b         | UEs supporting 5GS NR SA FR1 and CA measurement enhancements in HST                                                                   | Test execution not necessary if test 4.6.1.8 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.9      | NR SA FR1 event triggered reporting with MUSIM gap configured                                           | Rel-18  | C367          | UEs supporting 5GS NR SA FR1 and providing MUSIM assistance information with MUSIM gap preference and related MUSIM gap configuration |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |

| Clause       | TC Title                                                                                                                                        | Release | Applicability |                                                                                                                     | Additional Information                                          | Branch            | Subtest Selection Criteria |
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|              |                                                                                                                                                 |         | Condition     | Comment                                                                                                             |                                                                 |                   |                            |
| 6.6.1.12     | NR SA FR1 event triggered reporting with SSB index detection without measurement gap in non-DRX mode for UE operating with 12 PRB SSB bandwidth | Rel-18  | C343          | UEs supporting 5GS NR SA FR1 and bandwidth of less than 5 MHz                                                       |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.1.13     | NR SA FR1 event triggered reporting tests without gap in DRX under Cell DTX                                                                     | Rel-18  | C001w         | UEs supporting 5GS NR SA FR1 and long DRX cycle and Cell DTX operation                                              |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.2</b> | <b>Inter-frequency measurements</b>                                                                                                             |         |               |                                                                                                                     |                                                                 |                   |                            |
| 6.6.2.1      | NR SA FR1-FR1 event-triggered reporting in non-DRX                                                                                              | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                        | Test execution not necessary if test 4.6.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.2      | NR SA FR1-FR1 event-triggered reporting in DRX                                                                                                  | Rel-15  | C001b         | UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     | Test execution not necessary if test 4.6.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.5      | NR SA FR1-FR1 event-triggered reporting in non-DRX with SSB time index detection                                                                | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                        | Test execution not necessary if test 4.6.2.5 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.6      | NR SA FR1-FR1 event-triggered reporting in DRX with SSB time index detection                                                                    | Rel-15  | C001b         | UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     | Test execution not necessary if test 4.6.2.6 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.9      | NR SA FR1-FR1 event triggered reporting tests with additional mandatory gap pattern                                                             | Rel-16  | C001s         | UEs supporting 5GS NR SA FR1 and <i>supportedGapPattern-NRonly-r16</i>                                              |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.10     | NR SA FR1-FR1 event triggered reporting tests for FR1 without gap when DRX is used                                                              | Rel-16  | C287          | UEs supporting 5GS NR SA FR1 and long DRX cycle and inter-frequency SSB based measurements without measurement gaps |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.11     | NR SA FR1-FR1 event triggered reporting tests for FR1 without gap when DRX is not used                                                          | Rel-16  | C286          | UEs supporting 5GS NR SA FR1 and inter-frequency SSB based measurements without measurement gaps                    |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.12     | NR SA FR1-FR1 event triggered reporting tests without SSB time index detection in DRX for UE configured with highSpeedMeasInterFreq-r17         | Rel-17  | C052c         | UEs supporting 5GS NR SA FR1 and inter-freq measurement enhancements in HST                                         | Test execution not necessary if test 4.6.2.9 has been executed. | 2Rx<br>4Rx<br>8Rx | Subtest 2: F016            |

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|              |                                                                                                                               |         | Condition     | Comment                                                                                                                               |                                                                 |                   |                            |
| 6.6.2.13     | NR SA FR1-FR1 event triggered reporting using MUSIM gap with lower and higher priority                                        | Rel-18  | C367          | UEs supporting 5GS NR SA FR1 and providing MUSIM assistance information with MUSIM gap preference and related MUSIM gap configuration |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.14     | NR SA FR1-FR1 event triggered reporting using MUSIM gap with shorter MGRP                                                     | Rel-18  | C367          | UEs supporting 5GS NR SA FR1 and providing MUSIM assistance information with MUSIM gap preference and related MUSIM gap configuration |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.2.15     | NR SA FR1 event triggered reporting without SSB index detection in DRX mode for UE operating on a cell with less than 5MHz BW | Rel-18  | C386          | UEs supporting 5GS NR SA FR1 and long DRX cycle and bandwidth of less than 5 MHz                                                      |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.3</b> | <b>Inter-RAT measurements</b>                                                                                                 |         |               |                                                                                                                                       |                                                                 |                   |                            |
| 6.6.3.1      | NR SA FR1 – E-UTRAN event-triggered reporting in non-DRX                                                                      | Rel-15  | C025          | UEs supporting 5GS NR SA FR1 and E-UTRAN                                                                                              |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.3.2      | NR SA FR1 – E-UTRAN event-triggered reporting in DRX                                                                          | Rel-15  | C025a         | UEs supporting 5GS NR SA FR1, E-UTRAN and long DRX cycle                                                                              |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.3.3      | NR SA FR1 – E-UTRAN event-triggered reporting in DRX for UE configured with highSpeedMeasFlag-r16                             | Rel-16  | C025c         | UEs supporting 5GS NR SA FR1 and E-UTRAN, long DRX cycle and E-UTRA inter-RAT measurement enhancements in HST                         |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.4</b> | <b>L1-RSRP measurement for beam reporting</b>                                                                                 |         |               |                                                                                                                                       |                                                                 |                   |                            |
| 6.6.4.1      | NR SA FR1 SSB-based L1-RSRP measurement in non-DRX                                                                            | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                          | Test execution not necessary if test 4.6.4.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.4.2      | NR SA FR1 SSB-based L1-RSRP measurement in DRX                                                                                | Rel-15  | C001b         | UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                                       | Test execution not necessary if test 4.6.4.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.4.3      | NR SA FR1 CSI-RS-based L1-RSRP measurement in non-DRX                                                                         | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                          | Test execution not necessary if test 4.6.4.3 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.4.4      | NR SA FR1 CSI-RS-based L1-RSRP measurement in DRX                                                                             | Rel-15  | C001b         | UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                                       | Test execution not necessary if test 4.6.4.4 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |

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|              |                                                                                             |         | Condition     | Comment                                                                                                                                                                                                          |                                                                 |                   |                            |
| 6.6.4.5      | NR SA FR1 SSB-based L1-RSRP measurement in DRX for UE configured with highSpeedMeasFlag-r16 | Rel-16  | C001f         | UEs supporting 5GS NR SA FR1, long DRX cycle and intra-NR measurement enhancements in HST                                                                                                                        | Test execution not necessary if test 4.6.4.5 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.4.6      | NR SA FR1 Inter-cell SSB based L1-RSRP measurements on PCell in DRX                         | Rel-17  | C278          | UEs supporting 5GS NR SA FR1 Inter-cell SSB based L1-RSRP measurements on PCell in DRX                                                                                                                           |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.5</b> | <b>UTRAN inter-RAT measurement</b>                                                          |         |               |                                                                                                                                                                                                                  |                                                                 |                   |                            |
| 6.6.5.1      | NR SA FR1 – UTRAN event-triggered reporting in non-DRX                                      | Rel-16  | C096          | UEs supporting 5GS NR SA FR1 and UTRAN FDD                                                                                                                                                                       |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.8</b> | <b>L1-SINR measurement for beam reporting</b>                                               |         |               |                                                                                                                                                                                                                  |                                                                 |                   |                            |
| 6.6.8.1      | NR SA FR1 CSI-RS based CMR and no dedicated IMR L1-SINR measurement in DRX                  | Rel-16  | C144          | UEs supporting 5GS NR SA FR1 and long DRX cycle and L1-SINR measurement based on CSI-RS as CMR without dedicated IMR configured                                                                                  |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.8.2      | NR SA FR1 SSB based CMR and dedicated IMR L1-SINR measurement in non-DRX                    | Rel-16  | C145          | UEs supporting 5GS NR SA FR1 and L1-SINR measurement based on SSB as CMR and dedicated CSI-RS as IMR                                                                                                             |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.8.3      | NR SA FR1 CSI-RS based CMR and dedicated IMR L1-SINR measurement in non-DRX                 | Rel-16  | C146          | UEs supporting 5GS NR SA FR1 and L1-SINR measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR                                                                                                          |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.9</b> | <b>Idle Mode CA/DC Measurements</b>                                                         |         |               |                                                                                                                                                                                                                  |                                                                 |                   |                            |
| 6.6.9.1      | NR SA FR1 Idle mode CA/DC measurement for FR1                                               | Rel-16  | C031a         | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and NR SSB measurements in RRC_IDLE/RRC_INACTIVE                                                                                                                    |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.9.2      | NR SA FR1 Idle mode fast CA/DC eEMR measurement                                             | Rel-18  | C031e         | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and NR SSB measurements in RRC_IDLE/RRC_INACTIVE and measurement validation and report based on EMR measurement during connection setup/resume for fast CA/DC setup |                                                                 | 2Rx<br>4Rx<br>8Rx |                            |

| Clause        | TC Title                                                                                                                       | Release | Applicability |                                                                                                                                                                                                                                         | Additional Information | Branch            | Subtest Selection Criteria |
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|               |                                                                                                                                |         | Condition     | Comment                                                                                                                                                                                                                                 |                        |                   |                            |
| 6.6.9.3       | NR SA FR1 Idle mode fast CA/DC cell reselection measurement without valid reporting                                            | Rel-18  | C031f         | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and measurement validation based on reselection measurements during IDLE/INACTIVE state and reporting for fast CA/DC setup                                                                 |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.9.4       | NR SA FR1 Idle mode fast CA/DC cell reselection measurement with valid reporting                                               | Rel-18  | C031f         | UEs supporting 5GS NR SA FR1 and CA (2DL CA) and measurement validation based on reselection measurements during IDLE/INACTIVE state and reporting for fast CA/DC setup                                                                 |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.15</b> | <b>Idle Mode inter-RAT CA/DC Measurements</b>                                                                                  |         |               |                                                                                                                                                                                                                                         |                        |                   |                            |
| 6.6.15.1      | NR SA FR1 Idle Mode measurements of inter-RAT CA candidate cells for early reporting                                           | Rel-16  | C031b         | UEs supporting NE-DC FR1 and E-UTRA measurements in RRC_IDLE/RRC_INACTIVE                                                                                                                                                               |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.17</b> | <b>SA event triggered reporting tests with Pre-MG</b>                                                                          |         |               |                                                                                                                                                                                                                                         |                        |                   |                            |
| 6.6.17.1      | NR SA FR1 event triggered reporting tests with autonomous activation/deactivation Pre-MG                                       | Rel-17  | C259          | UEs supporting 5GS NR SA FR1, BWP adaptation of at least 2 BWPs, BWP operation without bandwidth restriction, DCI and timer-based active BWP switching delay Type1 or Type2, CSI-RS-based RLM and preconfiguredUE-AutonomousMeasGap-r17 |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.17.2      | NR SA FR1 event triggered reporting tests with pre-configured measurement gaps and network-controlled activation/deactivation  | Rel-17  | C260          | UEs supporting 5GS NR SA FR1, BWP adaptation of at least 2 BWPs, BWP operation without bandwidth restriction, DCI and timer-based active BWP switching delay Type1 or Type2, CSI-RS-based RLM and preconfiguredNW-ControlledMeasGap-r17 |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.18</b> | <b>SA event triggered reporting tests with concurrent gaps</b>                                                                 |         |               |                                                                                                                                                                                                                                         |                        |                   |                            |
| 6.6.18.1      | NR SA FR1 event-triggered reporting for concurrent gaps non-overlap with SSB-based measurements in both inter-frequency layers | Rel-17  | C264          | UEs supporting 5GS NR SA FR1 and more than 1 per-UE measurement gap configurations                                                                                                                                                      |                        | 2Rx<br>4Rx<br>8Rx |                            |

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|               |                                                                                                                                      |         | Condition     | Comment                                                                                                                                                                                                        |                        |                   |                            |
| 6.6.18.2      | NR SA FR1 event-triggered reporting for concurrent gaps partially-overlap with SSB-based measurements in both inter-frequency layers | Rel-17  | C264          | UEs supporting 5GS NR SA FR1 and more than 1 per-UE measurement gap configurations                                                                                                                             |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.18.3      | NR SA FR1 NR - E-UTRAN and NR FR1 concurrent event-triggered reporting in non-DRX in FR1                                             | Rel-17  | C265          | UEs supporting 5GS NR SA FR1 and E-UTRA and more than 1 per-UE measurement gap configurations and the configurations of E-UTRAN measurement objectives associated with more than 1 concurrent measurement gaps |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.18.4      | NR SA FR1 event triggered reporting tests for PRS and SSB measurement in FR1 without SSB time index detection when DRX is not used   | Rel-17  | C266          | UEs supporting 5GS NR SA FR1 and more than 1 per-UE measurement gap configurations and two independent measurement gap configurations for FR1 and FR2 for PRS measurement                                      |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.19</b> | <b>SA event triggered reporting tests with NCSG</b>                                                                                  |         |               |                                                                                                                                                                                                                |                        |                   |                            |
| 6.6.19.1      | NR SA FR1 event-triggered reporting tests with NCSG under non-DRX in FR1                                                             | Rel-17  | C253          | UEs supporting 5GS NR SA FR1, CSI-RS-based RLM, BWP operation without bandwidth restriction, NR only NCSG patterns and reporting of NCSG requirement information                                               |                        | 2Rx<br>4Rx<br>8Rx | Subtest 2: F024            |
| 6.6.19.2      | NR SA FR1 event-triggered reporting tests for FR1 with NCSG for inter-frequency measurement                                          | Rel-17  | C255          | UEs supporting 5GS NR SA FR1, NR only NCSG patterns and reporting of NCSG requirement information                                                                                                              |                        | 2Rx<br>4Rx<br>8Rx | Subtest 2: F024            |
| 6.6.19.3      | NR SA FR1 NR - E-UTRAN event-triggered reporting in non-DRX in FR1 with NCSG                                                         | Rel-17  | C257          | UEs supporting 5GS NR SA FR1, E-UTRAN, reporting of NCSG requirement information for E-UTRA and NCSG patterns                                                                                                  |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.19.4      | NR SA FR1 Event triggered reporting on SCC with deactivated SCell test with per-UE NCSG under non-DRX                                | Rel-17  | C258          | UEs supporting 5GS NR SA FR1, CA (2DL CA), reporting of NCSG requirement information and NR only NCSG patterns                                                                                                 |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.20</b> | <b>UE Rx-Tx time difference measurement for propagation delay compensation</b>                                                       |         |               |                                                                                                                                                                                                                |                        |                   |                            |
| 6.6.20.1      | UE Rx-Tx time difference measurement with PRS for RTT-based PDC in FR1 SA                                                            | Rel-17  | C212          | UEs supporting 5GS NR SA FR1 and RTT-based PDC for Rx-Tx measurement with PRS                                                                                                                                  |                        | 2Rx<br>4Rx<br>8Rx |                            |

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|               |                                                                                                   |         | Condition     | Comment                                                                                                                                                                                                                                                                 |                        |                   |                            |
| <b>6.6.21</b> | <b>UE Rx-Tx time difference measurement for propagation delay compensation with TRS</b>           |         |               |                                                                                                                                                                                                                                                                         |                        |                   |                            |
| 6.6.21.1      | UE Rx-Tx time difference measurement with TRS for RTT-based PDC in FR1 SA                         | Rel-17  | C213          | UEs supporting 5GS NR SA FR1 and RTT-based PDC for Rx-Tx measurement with TRS                                                                                                                                                                                           |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.22</b> | <b>SA event triggered reporting tests with concurrent gaps including Pre-MG</b>                   |         |               |                                                                                                                                                                                                                                                                         |                        |                   |                            |
| 6.6.22.1      | NR SA FR1 and FR1-FR1 event-triggered reporting with concurrent Type-2 measurement gap and Pre-MG | Rel-18  | C404          | UEs supporting 5GS NR SA FR1 and concurrent measurement gap patterns with at least one Pre-MG                                                                                                                                                                           | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.22.2      | NR SA FR1 event-triggered reporting with two concurrent Pre-MGs                                   | Rel-18  | C404          | UEs supporting 5GS NR SA FR1 and concurrent measurement gap patterns with at least one Pre-MG                                                                                                                                                                           | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.23</b> | <b>SA event triggered reporting tests with concurrent gaps including NCSG</b>                     |         |               |                                                                                                                                                                                                                                                                         |                        |                   |                            |
| 6.6.23.1      | NR SA FR1-FR1 event-triggered reporting with concurrent Type-2 measurement gap and NCSG           | Rel-18  | C405          | UEs supporting 5GS NR SA FR1 and concurrent measurement gap patterns with at least one NCSG                                                                                                                                                                             | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.23.2      | NR SA FR1-FR1 event-triggered reporting with two concurrent NCSGs                                 | Rel-18  | C405          | UEs supporting 5GS NR SA FR1 and concurrent measurement gap patterns with at least one NCSG                                                                                                                                                                             | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.23.3      | NR SA FR1 and FR1-FR1 event triggered reporting with concurrent Type-2 measurement gap and NCSG   | Rel-18  | C406          | UEs supporting 5GS NR SA FR1, 2DL CA and concurrent measurement gap patterns with at least one NCSG                                                                                                                                                                     | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.24</b> | <b>SA event triggered reporting tests with NeedForGap</b>                                         |         |               |                                                                                                                                                                                                                                                                         |                        |                   |                            |
| 6.6.24.1      | NR SA FR1 event-triggered reporting without gap with interruptions                                | Rel-18  | C391          | UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and BWP operation without bandwidth restriction, reporting the measurement gap requirements for NR target and reporting the interruption requirement information for SSB based measurement towards NR target without gap |                        | 2Rx<br>4Rx<br>8Rx |                            |

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|               |                                                                                                   |         | Condition     | Comment                                                                                                                                                                                                                                                                 |                        |                   |                            |
| 6.6.24.2      | NR SA FR1-FR1 event-triggered reporting without gap with interruption with SSB index reading      | Rel-18  | C392          | UEs supporting 5GS NR SA FR1, reporting the measurement gap requirements for NR target and reporting the interruption requirement information for SSB based measurement towards NR target without gap                                                                   |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.24.3      | NR SA FR1-FR1 event-triggered reporting without gap with interruption                             | Rel-18  | C392          | UEs supporting 5GS NR SA FR1, reporting the measurement gap requirements for NR target and reporting the interruption requirement information for SSB based measurement towards NR target without gap                                                                   |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.24.4      | NR SA FR1-FR1 event-triggered reporting without gap without interruption                          | Rel-18  | C392          | UEs supporting 5GS NR SA FR1, reporting the measurement gap requirements for NR target and reporting the interruption requirement information for SSB based measurement towards NR target without gap                                                                   |                        | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.24.5      | NR SA FR1 event-triggered reporting without gap without interruption                              | Rel-18  | C391          | UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and BWP operation without bandwidth restriction, reporting the measurement gap requirements for NR target and reporting the interruption requirement information for SSB based measurement towards NR target without gap |                        | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.25</b> | <b>SA NR - E-UTRAN event-triggered without measurement gaps</b>                                   |         |               |                                                                                                                                                                                                                                                                         |                        |                   |                            |
| 6.6.25.1      | NR SA FR1 - E-UTRAN event-triggered reporting without gap without interruption                    | Rel-18  | FFS           | FFS                                                                                                                                                                                                                                                                     | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.25.2      | NR SA FR1 - E-UTRAN event-triggered reporting without interruption outside gap                    | Rel-18  | FFS           | FFS                                                                                                                                                                                                                                                                     | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| 6.6.25.3      | NR SA FR1 - E-UTRAN event-triggered reporting without gap when CRS contained within active DL BWP | Rel-18  | FFS           | FFS                                                                                                                                                                                                                                                                     | NOTE 1                 | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.26</b> | <b>LTM Intra-frequency L1-RSRP measurement</b>                                                    |         |               |                                                                                                                                                                                                                                                                         |                        |                   |                            |

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|                |                                                                        |         | Condition     | Comment                                                                                                                                     |                                                                   |                   |                            |
| 6.6.26.1       | NR SA FR1 SSB based L1-RSRP measurement                                | Rel-18  | C359          | UEs supporting 5GS NR SA FR1, intra-frequency L1- RSRP measurement and reporting based on SSB(s) of candidate cell(s)                       |                                                                   | 2Rx<br>4Rx<br>8Rx | Subtest 2: F029            |
| <b>6.6.27</b>  | <b>LTM Inter-frequency L1-RSRP measurement with measurement gap</b>    |         |               |                                                                                                                                             |                                                                   |                   |                            |
| 6.6.27.1       | NR SA FR1-FR1 SSB based L1-RSRP measurement with measurement gap       | Rel-18  | C360          | UEs supporting 5GS NR SA FR1, inter-frequency L1- RSRP measurement and reporting based on SSB(s) of candidate cell(s)                       |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.6.28</b>  | <b>LTM Inter-frequency L1-RSRP measurement without measurement gap</b> |         |               |                                                                                                                                             |                                                                   |                   |                            |
| 6.6.28.1       | NR SA FR1-FR1 SSB based L1-RSRP measurement without measurement gap    | Rel-18  | C361          | UEs supporting 5GS NR SA FR1, SSB based inter-frequency L1- RSRP measurements on SSBs within active DL BWP without measurement gaps for LTM |                                                                   | 2Rx<br>4Rx<br>8Rx | Subtest 2: F029            |
| <b>6.7</b>     | <b>Measurement performance requirements</b>                            |         |               |                                                                                                                                             |                                                                   |                   |                            |
| <b>6.7.1</b>   | <b>SS-RSRP</b>                                                         |         |               |                                                                                                                                             |                                                                   |                   |                            |
| <b>6.7.1.1</b> | <b>Intra-frequency measurements</b>                                    |         |               |                                                                                                                                             |                                                                   |                   |                            |
| 6.7.1.1.1      | NR SA FR1 SS-RSRP absolute measurement accuracy                        | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                | Test execution not necessary if test 4.7.1.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.1.1.2      | NR SA FR1 SS-RSRP relative measurement accuracy                        | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                | Test execution not necessary if test 4.7.1.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.1.2</b> | <b>Inter-frequency measurements</b>                                    |         |               |                                                                                                                                             |                                                                   |                   |                            |
| 6.7.1.2.1      | NR SA FR1-FR1 SS-RSRP absolute measurement accuracy                    | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                | Test execution not necessary if test 4.7.1.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.1.2.2      | NR SA FR1-FR1 SS-RSRP relative measurement accuracy                    | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                                                | Test execution not necessary if test 4.7.1.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.2</b>   | <b>SS-RSRQ</b>                                                         |         |               |                                                                                                                                             |                                                                   |                   |                            |

| Clause       | TC Title                                                     | Release | Applicability |                                               | Additional Information                                            | Branch            | Subtest Selection Criteria |
|--------------|--------------------------------------------------------------|---------|---------------|-----------------------------------------------|-------------------------------------------------------------------|-------------------|----------------------------|
|              |                                                              |         | Condition     | Comment                                       |                                                                   |                   |                            |
| 6.7.2.1      | NR SA FR1 SS-RSRQ measurement accuracy                       | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                  | Test execution not necessary if test 4.7.2.1 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.2.2.1    | NR SA FR1-FR1 SS-RSRQ absolute measurement accuracy          | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                  | Test execution not necessary if test 4.7.2.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.2.2.2    | NR SA FR1-FR1 SS-RSRQ relative measurement accuracy          | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                  | Test execution not necessary if test 4.7.2.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.3</b> | <b>SS-SINR</b>                                               |         |               |                                               |                                                                   |                   |                            |
| 6.7.3.1      | NR SA FR1 SS-SINR measurement accuracy                       | Rel-15  | C034          | UEs supporting 5GS NR SA FR1 and SS-SINR-meas | Test execution not necessary if test 4.7.3.1 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.3.2.1    | NR SA FR1-FR1 SS-SINR absolute measurement accuracy          | Rel-15  | C034          | UEs supporting 5GS NR SA FR1 and SS-SINR-meas | Test execution not necessary if test 4.7.3.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.3.2.2    | NR SA FR1-FR1 SS-SINR relative measurement accuracy          | Rel-15  | C034          | UEs supporting 5GS NR SA FR1 and SS-SINR-meas | Test execution not necessary if test 4.7.3.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.4</b> | <b>L1-RSRP for beam reporting</b>                            |         |               |                                               |                                                                   |                   |                            |
| 6.7.4.1.1    | NR SA FR1 SSB based L1-RSRP absolute measurement accuracy    | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                  | Test execution not necessary if test 4.7.4.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.4.1.2    | NR SA FR1 SSB based L1-RSRP relative measurement accuracy    | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                  | Test execution not necessary if test 4.7.4.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.4.2.1    | NR SA FR1 CSI-RS based L1-RSRP absolute measurement accuracy | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                  | Test execution not necessary if test 4.7.4.2.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.4.2.2    | NR SA FR1 CSI-RS based L1-RSRP relative measurement accuracy | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                  | Test execution not necessary if test 4.7.4.2.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.5</b> | <b>E-UTRAN RSRP</b>                                          |         |               |                                               |                                                                   |                   |                            |

| Clause        | TC Title                                                                                                                                     | Release | Applicability |                                                                                                                       | Additional Information                                            | Branch            | Subtest Selection Criteria |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------|----------------------------|
|               |                                                                                                                                              |         | Condition     | Comment                                                                                                               |                                                                   |                   |                            |
| 6.7.5.1       | NR SA FR1 – E-UTRAN RSRP absolute measurement accuracy                                                                                       | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                          |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.6</b>  | <b>E-UTRAN RSRQ</b>                                                                                                                          |         |               |                                                                                                                       |                                                                   |                   |                            |
| 6.7.6.1       | NR SA FR1 – E-UTRAN RSRQ absolute measurement accuracy                                                                                       | Rel-15  | C001          | UEs supporting 5GS NR SA FR1                                                                                          |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.7</b>  | <b>E-UTRAN RS-SINR</b>                                                                                                                       |         |               |                                                                                                                       |                                                                   |                   |                            |
| 6.7.7.1       | NR SA FR1 – E-UTRAN RS-SINR absolute measurement accuracy                                                                                    | Rel-15  | C168          | UEs supporting 5GS NR SA FR1 and E-UTRA RS-SINR measurements                                                          |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.9</b>  | <b>L1-SINR</b>                                                                                                                               |         |               |                                                                                                                       |                                                                   |                   |                            |
| 6.7.9.1.1     | NR SA FR1 CSI-RS based CMR and no dedicated IMR configured and CSI-RS resource set with repetition off L1-SINR absolute measurement accuracy | Rel-16  | C132          | UEs supporting 5GS NR SA FR1 and L1-SINR-measurement based on CSI-RS as CMR without dedicated IMR configured          | Test execution not necessary if test 4.7.7.1.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.9.1.2     | NR SA FR1 CSI-RS based CMR and no dedicated IMR configured and CSI-RS resource set with repetition off L1-SINR relative measurement accuracy | Rel-16  | C132          | UEs supporting 5GS NR SA FR1 and L1-SINR-measurement based on CSI-RS as CMR without dedicated IMR configured          | Test execution not necessary if test 4.7.7.1.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.9.2       | NR SA FR1 SSB based CMR and dedicated IMR L1-SINR absolute measurement accuracy                                                              | Rel-16  | C133          | UEs supporting 5GS NR SA FR1 and L1-SINR-measurement based on SSB as CMR and dedicated CSI-IM as IMR                  | Test execution not necessary if test 4.7.7.2 has been executed.   | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.9.3.1     | NR SA FR1 CSI-RS based CMR and dedicated IMR L1-SINR absolute measurement accuracy                                                           | Rel-16  | C134          | UEs supporting 5GS NR SA FR1 and L1-SINR-measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR               | Test execution not necessary if test 4.7.7.3.1 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| 6.7.9.3.2     | NR SA FR1 CSI-RS based CMR and dedicated IMR L1-SINR relative measurement accuracy                                                           | Rel-16  | C134          | UEs supporting 5GS NR SA FR1 and L1-SINR-measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR               | Test execution not necessary if test 4.7.7.3.2 has been executed. | 2Rx<br>4Rx<br>8Rx |                            |
| <b>6.7.17</b> | <b>LTM L1-RSRP measurement</b>                                                                                                               |         |               |                                                                                                                       |                                                                   |                   |                            |
| 6.7.17.1.1    | NR SA FR1-FR1 L1-RSRP absolute accuracy requirements for neighbour cell                                                                      | Rel-18  | C360          | UEs supporting 5GS NR SA FR1, inter-frequency L1- RSRP measurement and reporting based on SSB(s) of candidate cell(s) |                                                                   | 2Rx<br>4Rx<br>8Rx |                            |

NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533.

NOTE 2: Test X refers to the corresponding Sub-Test as defined in TS 38.533 [5].

NOTE 3: Test cases in TS 38.533 [5] clause 6 only apply to FR1 non-RedCap UEs. For FR1 RedCap UEs, Test cases in TS 38.533 [5] clause 16 apply.

**Table 4.2-3a: Void**

**Table 4.2-4: Applicability of RRM NR SA FR2 conformance test cases, ref. TS 38.533 [5]**

| Clause         | TC Title                                                                                                         | Release | Applicability |                                                                               | Additional Information | Branch                     | Test Selection Criteria |
|----------------|------------------------------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------|------------------------|----------------------------|-------------------------|
|                |                                                                                                                  |         | Condition     | Comment                                                                       |                        |                            |                         |
| <b>7.1</b>     | <b>RRC_IDLE state mobility</b>                                                                                   |         |               |                                                                               |                        |                            |                         |
| <b>7.1.1</b>   | <b>NR cell re-selection</b>                                                                                      |         |               |                                                                               |                        |                            |                         |
| 7.1.1.1        | NR SA FR2 cell re-selection                                                                                      | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                  |                        | PC1<br>PC3                 |                         |
| 7.1.1.2        | NR SA FR2-FR2 cell re-selection                                                                                  | FFS     | FFS           | FFS                                                                           |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.1.1.3        | NR SA FR2 cell re-selection for UE fulfilling low mobility relaxed measurement criterion                         | Rel-16  | C095          | UEs supporting 5GS NR SA FR2 and relaxed RRM measurement                      |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.1.1.4        | NR SA FR2 cell re-selection for UE fulfilling not-at-cell edge relaxed measurement criterion                     | Rel-16  | C095          | UEs supporting 5GS NR SA FR2 and relaxed RRM measurement                      |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.1.1.5        | NR SA FR2-FR2 cell re-selection for UE fulfilling low mobility relaxed measurement criterion                     | Rel-16  | C095          | UEs supporting 5GS NR SA FR2 and relaxed RRM measurement                      |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.1.1.6        | NR SA FR2-FR2 cell re-selection for UE fulfilling not-at-cell edge relaxed measurement criterion                 | Rel-16  | C095          | UEs supporting 5GS NR SA FR2 and relaxed RRM measurement                      |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.1.1.7        | NR SA FR2 cell re-selection for power class 6 UE configured with <i>highSpeedMeasFlagFR2-r17</i>                 | Rel-17  | C240          | UEs supporting 5GS NR SA FR2 and intra-frequency RRC_IDLE measurements in HST |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.1.1.8        | NR SA FR2 inter-frequency cell re-selection for power class 6 UE configured with <i>highSpeedMeasFlagFR2-r17</i> | Rel-18  | C345          | UEs supporting 5GS NR SA FR2 and inter-frequency RRC_IDLE measurements in HST |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.2</b>     | <b>RRC_INACTIVE state mobility</b>                                                                               |         |               |                                                                               |                        |                            |                         |
| <b>7.2.1</b>   | <b>Small Data Transmission</b>                                                                                   |         |               |                                                                               |                        |                            |                         |
| 7.2.1.1        | TA Validation for CG-SDT in FR2                                                                                  | Rel-17  | C095a         | UEs supporting 5GS NR SA FR2 and TA Validation for CG-SDT in FR2              |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.3</b>     | <b>RRC_CONNECTED state mobility</b>                                                                              |         |               |                                                                               |                        |                            |                         |
| <b>7.3.1</b>   | <b>Handover</b>                                                                                                  |         |               |                                                                               |                        |                            |                         |
| 7.3.1.4        | NR SA FR1-FR2 synchronous DAPS handover                                                                          | Rel-16  | N/A           | Not recommended due to FR1 – FR2 testability issue                            |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.3.1.5        | NR SA FR1-FR2 asynchronous DAPS handover                                                                         | Rel-16  | N/A           | Not recommended due to FR1 – FR2 testability issue                            |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.3.2</b>   | <b>RRC connection mobility control</b>                                                                           |         |               |                                                                               |                        |                            |                         |
| <b>7.3.2.1</b> | <b>RRC re-establishment</b>                                                                                      |         |               |                                                                               |                        |                            |                         |
| 7.3.2.1.1      | NR SA FR2 RRC re-establishment                                                                                   | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                  |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.3.2.1.2      | NR SA FR2 - FR2 RRC re-establishment                                                                             | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                  |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.3.2.1.3      | NR SA FR2 RRC re-establishment without serving cell timing                                                       | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                  |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.3.2.2</b> | <b>Random access</b>                                                                                             |         |               |                                                                               |                        |                            |                         |

| Clause         | TC Title                                                                      | Release | Applicability |                                                                                                                                                                                                                                                                                                                                        | Additional Information | Branch                     | Test Selection Criteria |
|----------------|-------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------|-------------------------|
|                |                                                                               |         | Condition     | Comment                                                                                                                                                                                                                                                                                                                                |                        |                            |                         |
| 7.3.2.2.1      | NR SA FR2 contention based random access                                      | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                                                                                                                                                                                                                           |                        | PC1<br>PC3                 |                         |
| 7.3.2.2.2      | NR SA FR2 non-contention based random access                                  | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                                                                                                                                                                                                                           |                        | PC1<br>PC3                 | Subtest 2: F007         |
| 7.3.2.2.4      | NR SA FR2 2-step non-contention based random access                           | Rel-16  | C160          | UEs supporting 5GS NR SA FR2 and 2-step RACH                                                                                                                                                                                                                                                                                           |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.3.2.3</b> | <b>RRC connection release with redirection</b>                                |         |               |                                                                                                                                                                                                                                                                                                                                        |                        |                            |                         |
| 7.3.2.3.1      | NR SA FR2-FR2 RRC connection release with redirection                         | FFS     | FFS           | FFS                                                                                                                                                                                                                                                                                                                                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.3.2.4</b> | <b>LTM PDCCH-order Random Access</b>                                          |         |               |                                                                                                                                                                                                                                                                                                                                        |                        |                            |                         |
| 7.3.2.4.1      | NR SA FR2 PDCCH-order RACH on neighbor cell when RACH BW is within active BWP | Rel-18  | C364a         | UEs supporting 5GS NR SA FR1, intra-frequency LTM for MCG with RACH, unified TCI with joint DL/UL LTM TCI-state indication for LTM procedure, intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s)002E                                                                                               | NOTE 1                 | PC1(NOTE 1)<br>PC3(NOTE 1) | Test 2: FFS             |
| 7.3.2.4.2      | NR SA FR2 PDCCH-order RACH on inter-frequency neighbor cell                   | Rel-18  | C386a         | UEs supporting 5GS NR SA FR1, inter-frequency LTM for MCG with RACH, inter-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s), interruptions caused by PDCCH order and Support simultaneous transmission to handle the overlap between UL transmission on serving cell(s) and PRACH on candidate cell(s) | NOTE 1                 | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.3.3</b>   | <b>Conditional Handover</b>                                                   |         |               |                                                                                                                                                                                                                                                                                                                                        |                        |                            |                         |
| 7.3.3.1        | NR SA FR2 conditional handover                                                | Rel-16  | C106          | UEs supporting 5GS NR SA FR2 and conditional handover                                                                                                                                                                                                                                                                                  |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.3.3.2        | NR SA FR2-FR2 conditional handover                                            | Rel-16  | C106          | UEs supporting 5GS NR SA FR2 and conditional handover                                                                                                                                                                                                                                                                                  |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.3.3.3        | NR SA FR2 intra-frequency NES triggering conditional handover                 | Rel-18  | C106a         | UEs supporting 5GS NR SA FR2 and NES triggered conditional handover                                                                                                                                                                                                                                                                    |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.3.3.4        | NR SA FR2-FR1 inter-frequency NES triggering conditional handover             | Rel-18  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                                                                                                                                                                                                                                                     | NOTE 1                 |                            |                         |
| <b>7.3.4</b>   | <b>LTM PCell Switch</b>                                                       |         |               |                                                                                                                                                                                                                                                                                                                                        |                        |                            |                         |

| Clause       | TC Title                                                                                                  | Release | Applicability |                                                                                                                                                                                                                                        | Additional Information | Branch                     | Test Selection Criteria                                          |
|--------------|-----------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------|------------------------------------------------------------------|
|              |                                                                                                           |         | Condition     | Comment                                                                                                                                                                                                                                |                        |                            |                                                                  |
| 7.3.4.1      | NR SA FR2 RACH based PCell switch from FR2 to FR2                                                         | Rel-18  | C381          | UEs supporting 5GS NR SA FR2, intra-frequency LTM for MCG with RACH, intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s)                                                                            |                        | PC1(NOTE 1)<br>PC3         | Test 1A: F051<br>Test 1B: F031<br>Test 2A: F032<br>Test 2B: F033 |
| 7.3.4.2      | NR SA FR2 RACH-less PCell switch from FR2 to FR2                                                          | Rel-18  | C382          | UEs supporting 5GS NR SA FR2, intra-frequency LTM for MCG with RACH, RACH-less LTM with dynamic grant, TA indication in cell switch command and intra-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s) |                        | PC1(NOTE 1)<br>PC3         | Test 1A: F051<br>Test 1B: F031<br>Test 2A: F032<br>Test 2B: F033 |
| 7.3.4.3      | NR SA FR2-FR2 RACH-based LTM PCell switch from FR2 to FR2                                                 | Rel-18  | C383          | UEs supporting 5GS NR SA FR2, inter-frequency LTM for MCG with RACH without NR-DC configuration, inter-frequency L1-RSRP measurement and reporting with measurement gaps based on SSB(s) of candidate cell(s)                          |                        | PC1(NOTE 1)<br>PC3         | Test 1A: F051<br>Test 1B: F031<br>Test 2A: F032<br>Test 2B: F033 |
| <b>7.3.5</b> | <b>LTM PSCell Switch</b>                                                                                  |         |               |                                                                                                                                                                                                                                        |                        |                            |                                                                  |
| 7.3.5.1      | NR SA FR2 RACH-based Intra-frequency LTM PSCell switch                                                    | Rel-18  | FFS           |                                                                                                                                                                                                                                        | NOTE 1                 |                            |                                                                  |
| <b>7.4</b>   | <b>Timing</b>                                                                                             |         |               |                                                                                                                                                                                                                                        |                        |                            |                                                                  |
| <b>7.4.1</b> | <b>UE transmit timing</b>                                                                                 |         |               |                                                                                                                                                                                                                                        |                        |                            |                                                                  |
| 7.4.1.1      | NR SA FR2 UE transmit timing accuracy                                                                     | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                                                                                                                           |                        | PC1<br>PC3                 | Subtest 2:<br>F008                                               |
| 7.4.1.3      | NR SA FR2 UE Transmit Timing Test with 2-TA for UE supporting <i>multiDCI-IntraCellMultiTRP-TwoTA-r18</i> | Rel-18  | C349          | UEs supporting 5GS NR SA FR2 and 2 TAGs for multi-DCI multi-TRP operation                                                                                                                                                              |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                                                                  |
| <b>7.4.2</b> | <b>UE timer accuracy</b>                                                                                  |         |               |                                                                                                                                                                                                                                        |                        |                            |                                                                  |
| <b>7.4.3</b> | <b>Timing advance</b>                                                                                     |         |               |                                                                                                                                                                                                                                        |                        |                            |                                                                  |
| 7.4.3.1      | NR SA FR2 timing advance adjustment accuracy                                                              | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                                                                                                                           |                        | PC1<br>PC3                 |                                                                  |
| <b>7.5</b>   | <b>Signalling characteristics</b>                                                                         |         |               |                                                                                                                                                                                                                                        |                        |                            |                                                                  |
| <b>7.5.1</b> | <b>Radio Link Monitoring</b>                                                                              |         |               |                                                                                                                                                                                                                                        |                        |                            |                                                                  |
| 7.5.1.1      | Radio Link Monitoring Out-of-sync Test for FR2 PCell configured with SSB-based RLM RS in non-DRX mode     | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                                                                                                                           |                        | PC1(NOTE 1)<br>PC3         |                                                                  |

| Clause       | TC Title                                                                                                       | Release | Applicability |                                                                                                        | Additional Information | Branch                     | Test Selection Criteria |
|--------------|----------------------------------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------|------------------------|----------------------------|-------------------------|
|              |                                                                                                                |         | Condition     | Comment                                                                                                |                        |                            |                         |
| 7.5.1.2      | Radio Link Monitoring In-sync Test for FR2 PCell configured with SSB-based RLM RS in non-DRX mode              | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                           |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.1.3      | Radio Link Monitoring Out-of-sync Test for FR2 PCell configured with SSB-based RLM RS in DRX mode              | Rel-15  | C006a         | UEs supporting 5GS NR SA FR2 and long DRX cycle                                                        |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.1.4      | Radio Link Monitoring In-sync Test for FR2 PCell configured with SSB-based RLM RS in DRX mode                  | Rel-15  | C006a         | UEs supporting 5GS NR SA FR2 and long DRX cycle                                                        |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.1.5      | NR SA FR2 Radio Link Monitoring Out-of-sync Test for PCell configured with CSI-RS-based RLM RS in non-DRX mode | Rel-15  | C164          | UEs supporting 5GS NR SA FR2 and CSI-RS based RLM                                                      |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.1.6      | NR SA FR2 Radio Link Monitoring In-sync Test for FR2 PCell configured with CSI-RS-based RLM in non-DRX mode    | Rel-15  | C164          | UEs supporting 5GS NR SA FR2 and CSI-RS based RLM                                                      |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.1.7      | NR SA FR2 Radio Link Monitoring Out-of-sync Test for FR2 PCell configured with CSI-RS-based RLM RS in DRX mode | Rel-15  | C165          | UEs supporting 5GS NR SA FR2 and CSI-RS based RLM and log DRX cycle                                    |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.1.8      | NR SA FR2 Radio Link Monitoring In-sync Test for FR2 PCell configured with CSI-RS-based RLM in DRX mode        | Rel-15  | C165          | UEs supporting 5GS NR SA FR2 and CSI-RS based RLM and log DRX cycle                                    |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.1.9      | NR SA FR2 radio link monitoring UE scheduling restrictions                                                     | Rel-15  | C006n         | UEs supporting 5GS NR SA FR2 and PDCCH monitoring in any symbol of the slot (with or without span gap) |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.5.2</b> | <b>Interruption</b>                                                                                            |         |               |                                                                                                        |                        |                            |                         |
| 7.5.2.1      | NR SA FR2 interruptions during measurements on deactivated NR SCC                                              | Rel-15  | C006b         | UEs supporting 5GS NR SA FR2 and 2DL CA in NR                                                          |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.5.3</b> | <b>Scell activation and deactivation delay</b>                                                                 |         |               |                                                                                                        |                        |                            |                         |
| 7.5.3.1      | NR SA FR2-FR2 intra-band SCell activation and deactivation delay                                               | FFS     | FFS           | FFS                                                                                                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.3.2      | NR SA FR1-FR2 inter-band SCell activation and deactivation delay                                               | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                     |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.3.3      | SCell Activation and deactivation for SCell in FR2 inter-band in non-DRX                                       | Rel-17  | C031c         | UEs supporting 5GS NR SA FR2 and 2DL CA in NR                                                          |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.3.4      | NR SA FR2 direct SCell activation at SCell addition of known SCell                                             | Rel-16  | C241          | UEs supporting 5GS NR SA FR2 and 2DL CA in NR and direct SCell activation                              |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.3.5      | NR SA FR2 direct SCell activation at handover with known SCell                                                 | Rel-16  | C241          | UEs supporting 5GS NR SA FR2 and 2DL CA in NR and direct SCell activation                              |                        | PC1(NOTE 1)<br>PC3         |                         |

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|                |                                                                                                                    |         | Condition     | Comment                                                                                    |                        |                            |                         |
| 7.5.3.13       | NR SA FR2 SCell Activation for SCell in FR2 intra-band in non-DRX                                                  | Rel-17  | C271          | UEs supporting 5GS NR SA intra-band FR2 and 2DL CA in NR and fast SCell activation         |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.3.14       | NR SA FR2 SCell Activation for known SCell in FR2 inter-band                                                       | Rel-17  | C271a         | UEs supporting 5GS NR SA inter-band FR2 and 2DL CA in NR and fast SCell activation         |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.5.5</b>   | <b>Beam failure detection and link recovery procedures</b>                                                         |         |               |                                                                                            |                        |                            |                         |
| 7.5.5.1        | NR SA FR2 SSB-based beam failure detection and link recovery in non-DRX                                            | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.5.2        | NR SA FR2 SSB-based beam failure detection and link recovery in DRX                                                | Rel-15  | C006a         | UEs supporting 5GS NR SA FR2 and long DRX cycle                                            |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.5.3        | NR SA FR2 CSI-RS-based beam failure detection and link recovery in non-DRX                                         | Rel-15  | C164          | UEs supporting 5GS NR SA FR2 and CSI-RS based RLM                                          |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.5.4        | NR SA FR2 CSI-RS-based beam failure detection and link recovery in DRX                                             | Rel-15  | C165          | UEs supporting 5GS NR SA FR2, long DRX cycle and CSI-RS based RLM                          |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.5.5        | NR SA FR2 scheduling availability restriction during SSB-based beam failure detection and link recovery in non-DRX | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.5.6        | NR SA FR2 SCell CSI-RS-based beam failure detection and link recovery in non-DRX                                   | Rel-16  | C147          | UEs supporting 5GS NR SA FR2 and CSI-RS based BFR on SCell                                 |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.5.7        | NR SA FR2 SCell CSI-RS-based beam failure detection and link recovery in DRX                                       | Rel-16  | C148          | UEs supporting 5GS NR SA FR2 and long DRX cycle and CSI-RS based BFR on SCell              |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.5.9        | NR SA FR2 SCell TRP specific CSI-RS-based Beam Failure Detection and Link Recovery in DRX                          | Rel-17  | C148a         | UEs supporting 5GS NR TRP specific SA FR2 and long DRX cycle and CSI-RS based BFR on SCell |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.5.10       | NR SA FR2 PCell TRP specific SSB-based Beam Failure Detection and Link Recovery in non-DRX                         | Rel-17  | C006x         | UEs supporting 5GS NR TRP specific SA FR2 SSB based BFR                                    |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.5.6</b>   | <b>Active BWP switch delay</b>                                                                                     |         |               |                                                                                            |                        |                            |                         |
| <b>7.5.6.1</b> | <b>Intra-frequency measurements</b>                                                                                |         |               |                                                                                            |                        |                            |                         |
| 7.5.6.1.1      | NR SA FR2 DCI-based DL active BWP switch in non-DRX                                                                | FFS     | FFS           | FFS                                                                                        |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.6.1.2      | NR SA FR1-FR2 DCI-based DL active BWP switch in non-DRX                                                            | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                         |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.6.1.3      | NR SA FR2 DCI-based DL active BWP switch in non-DRX                                                                | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                               |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.5.6.2</b> | <b>RRC-based active BWP switch</b>                                                                                 |         |               |                                                                                            |                        |                            |                         |

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|                |                                                                                                      |         | Condition     | Comment                                                                                                                                                                                |                        |                            |                         |
| 7.5.6.2.1      | NR SA FR2 RRC-based DL active BWP switch in non-DRX                                                  | FFS     | FFS           | FFS                                                                                                                                                                                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.5.7</b>   | <b>PSCell addition and release delay</b>                                                             |         |               |                                                                                                                                                                                        |                        |                            |                         |
| 7.5.7.1        | NR SA FR2 addition and release delay of known PSCell                                                 | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                                                                                                     |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.7.2        | NR SA FR2 addition and release delay of unknown PSCell                                               | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                                                                                                     |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.5.8</b>   | <b>Active TCI state switch delay</b>                                                                 |         |               |                                                                                                                                                                                        |                        |                            |                         |
| <b>7.5.8.1</b> | <b>NR SA FR2 MAC-CE based active TCI state switch</b>                                                |         |               |                                                                                                                                                                                        |                        |                            |                         |
| 7.5.8.1.1      | NR SA PCell FR2 MAC-CE based active TCI state switch for a known TCI state                           | Rel-15  | C006m         | UEs supporting 5GS NR SA FR2, maximum number of active TCI states per BWP greater than 1, and maximum number of simultaneously trackable TRS resource sets per CC greater than 1       |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.5.8.2</b> | <b>NR SA FR2 RRC based active TCI state switch</b>                                                   |         |               |                                                                                                                                                                                        |                        |                            |                         |
| 7.5.8.2.1      | NR SA Pcell FR2 RRC based active TCI state switch for a known TCI state                              | Rel-15  | C006m         | UEs supporting 5GS NR SA FR2, maximum number of active TCI states per BWP greater than 1, and maximum number of simultaneously trackable TRS resource sets per CC greater than 1       |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.5.8.3</b> | <b>MAC-CE based active TCI state switch for HST FR2 scenario</b>                                     |         |               |                                                                                                                                                                                        |                        |                            |                         |
| 7.5.8.3.1      | NR PCell FR2 HST active TCI state switch for a known TCI state                                       | Rel-17  | C240a         | UEs supporting 5GS NR SA FR2 and one-shot large UL timing adjustment.in HST                                                                                                            |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.8.3.2      | NR SA FR2 HST active TCI state switch for PC6 UE supporting tci-StateSwitchInd-r18 a known TCI state | Rel-18  | C345a         | UEs supporting 5GS NR SA FR2 and enhanced one-shot large UL timing adjustment and enhanced TCI state switching delay requirements in HST                                               |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.8.4        | NR SA FR2 DCI based active TCI state switch with m-DCI for simultaneous reception                    | Rel-18  | C379          | UEs supporting 5GS NR SA FR2, maximum number of active TCI states per BWP and maximum number of simultaneously TRS resource sets per CC greater than 1, and group based beam reporting | NOTE 1                 |                            |                         |

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|                 |                                                                                                            |         | Condition     | Comment                                                                                                                                                                                                                                   |                        |                            |                         |
| 7.5.8.5         | NR SA FR2 Single-DCI based active TCI state switch with known target TCI states for simultaneous reception | Rel-18  | C380          | UEs supporting 5GS NR SA FR2, maximum number of active TCI states per BWP and maximum number of simultaneously TRS resource sets per CC greater than 1, group based beam reporting                                                        | NOTE 1                 |                            |                         |
| <b>7.5.11</b>   | <b>UE UL carrier RRC reconfiguration delay</b>                                                             |         |               |                                                                                                                                                                                                                                           |                        |                            |                         |
| 7.5.11.1        | UE UL carrier RRC reconfiguration delay                                                                    | Rel-17  | C006          | UEs supporting 5GS NR SA FR2                                                                                                                                                                                                              |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.5.12</b>   | <b>Conditional PSCell addition and release delay (FR2 SA)</b>                                              |         |               |                                                                                                                                                                                                                                           |                        |                            |                         |
| 7.5.12.1        | NR SA FR2 Addition and Release Delay of PSCell                                                             | Rel-17  | C268b         | UEs supporting Inter-band NR-DC between FR1 and FR2 and conditional PSCell addition in NR-DC                                                                                                                                              |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.5.13</b>   | <b>Unified TCI state switch delay</b>                                                                      |         |               |                                                                                                                                                                                                                                           |                        |                            |                         |
| 7.5.13.1        | NR SA FR2 MAC-CE based active joint TCI state switch                                                       | Rel-17  | C281          | UEs supporting 5GS NR SA FR2, and unified TCI state operation with joint DL/UL TCI update for intra-cell beam management                                                                                                                  |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.13.2        | NR SA FR2 MAC-CE based active uplink TCI state switch                                                      | Rel-17  | C282          | UEs supporting 5GS NR SA FR2, and unified TCI state operation with separate DL/UL TCI update for intra-cell beam management                                                                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.5.13.3        | NR SA FR2 MAC-CE based active downlink TCI state switch                                                    | Rel-17  | C283          | UEs supporting 5GS NR SA FR2, and supporting RRC configuration of additional PCI different from serving cell associated with the TCI state and/or QCL-info, and unified TCI with separate DL/UL TCI update for inter-cell beam management |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.5.13.4</b> | <b>sDCI MAC-CE based joint TCI state switching</b>                                                         |         |               |                                                                                                                                                                                                                                           |                        |                            |                         |
| 7.5.13.4.1      | NR SA FR2 PCell dual downlink and uplink TCI state switch in sDCI for known case                           | Rel-18  | C398          | UEs supporting 5GS NR SA FR2, and unified TCI with joint DL/UL TCI update and not supporting separate DL/UL TCI update for single-DCI based intra-cell multi-TRP                                                                          |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |

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|                 |                                                                                                                   |         | Condition     | Comment                                                                                                                                    |                        |                            |                         |
| <b>7.5.13.5</b> | <b>MAC-CE based dual downlink TCI state switching delay for unified TCI for single-DCI mTRP</b>                   |         |               |                                                                                                                                            |                        |                            |                         |
| 7.5.13.5.1      | NR SA FR2 PCell dual downlink TCI state switch in sDCI for known case                                             | Rel-18  | C399          | UEs supporting 5GS NR SA FR2, and unified TCI with separate DL/UL TCI update for single-DCI based intra-cell multi-TRP                     |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.5.13.6.1      | NR SA FR2 MAC-CE based active uplink TCI state switch for two known TCI states                                    | Rel-18  | C348          | UEs supporting 5GS NR SA FR2, and unified TCI state operation with separate DL/UL TCI update for intra-cell beam management with multi-TRP |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.5.14</b>   | <b>PSCell activation and deactivation delay</b>                                                                   |         |               |                                                                                                                                            |                        |                            |                         |
| 7.5.14.1        | NR SA FR2 PSCell RACH-less based Activation and deactivation for FR1+FR2 inter-band with target PSCell in FR2     | Rel-17  | C284          | UEs supporting Inter-band NR-DC between FR1 and FR2 and activation and deactivation on SCG in NR-DC                                        |                        |                            |                         |
| <b>7.6</b>      | <b>Measurement procedures</b>                                                                                     |         |               |                                                                                                                                            |                        |                            |                         |
| <b>7.6.1</b>    | <b>Intra-frequency measurements</b>                                                                               |         |               |                                                                                                                                            |                        |                            |                         |
| 7.6.1.1         | NR SA FR2 event-triggered reporting without gap in non-DRX                                                        | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1<br>PC3                 |                         |
| 7.6.1.2         | NR SA FR2 event-triggered reporting without gap in DRX                                                            | Rel-15  | C006a         | UEs supporting 5GS NR SA FR2 and long DRX cycle                                                                                            |                        | PC1<br>PC3                 |                         |
| 7.6.1.3         | NR SA FR2 event-triggered reporting with gap in non-DRX                                                           | Rel-15  | C166          | UEs supporting 5GS NR SA FR2, CSI-RS-based RLM and BWP operation without bandwidth restriction                                             |                        | PC1<br>PC3                 |                         |
| 7.6.1.4         | NR SA FR2 event-triggered reporting with gap in DRX                                                               | Rel-15  | C167          | UEs supporting 5GS NR SA FR2 long DRX cycle, CSI-RS-based RLM and BWP operation without bandwidth restriction                              |                        | PC1<br>PC3                 |                         |
| 7.6.1.5         | NR SA FR2 event-triggered reporting without gap in non-DRX for UE configured with <i>highSpeedMeasFlagFR2-r17</i> | Rel-17  | C240          | UEs supporting 5GS NR SA FR2 and intra-frequency measurements in HST                                                                       |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.6.2</b>    | <b>Inter-frequency measurements</b>                                                                               |         |               |                                                                                                                                            |                        |                            |                         |
| 7.6.2.1         | NR SA FR2-FR2 event-triggered reporting in non-DRX                                                                | Rel-15  | C006r         | UEs supporting 5GS NR SA FR2 and supportedGapPattern with gap pattern 13                                                                   |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.2.2         | NR SA FR2-FR2 event-triggered reporting in DRX                                                                    | Rel-15  | C006s         | UEs supporting 5GS NR SA FR2 and supportedGapPattern with gap pattern 13 and long DRX cycle                                                |                        | PC1(NOTE 1)<br>PC3         |                         |

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|              |                                                                                  |         | Condition     | Comment                                                                                                                               |                        |                            |                         |
| 7.6.2.3      | NR SA FR2-FR2 event-triggered reporting in non-DRX with SSB time index detection | Rel-15  | C006r         | UEs supporting 5GS NR SA FR2 and supportedGapPattern with gap pattern 13                                                              |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.2.4      | NR SA FR2-FR2 event-triggered reporting in DRX with SSB time index detection     | Rel-15  | C006s         | UEs supporting 5GS NR SA FR2 and supportedGapPattern with gap pattern 13 and long DRX cycle                                           |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.2.5      | NR SA FR1-FR2 event-triggered reporting in non-DRX                               | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                                                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.6.2.6      | NR SA FR1-FR2 event-triggered reporting in DRX                                   | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                                                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.6.2.7      | NR SA FR1-FR2 event-triggered reporting in non-DRX with SSB time index detection | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                                                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.6.2.8      | NR SA FR1-FR2 event-triggered reporting in DRX with SSB time index detection     | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                                                    |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.6.2.10     | SA FR2-FR2 event triggered reporting test without gap under non-DRX              | Rel-16  | C334          | UEs supporting 5GS NR SA FR2 and inter-frequency SSB based measurements without measurement gaps                                      |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.2.11     | SA FR2-FR2 event triggered reporting test without gap under DRX                  | Rel-16  | C335          | UEs supporting 5GS NR SA FR2 and long DRX cycle and inter-frequency SSB based measurements without measurement gaps                   |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.2.20     | NR SA FR2-FR2 event triggered reporting using MUSIM gap with higher priority     | Rel-18  | C351b         | UEs supporting 5GS NR SA FR2 and providing MUSIM assistance information with MUSIM gap preference and related MUSIM gap configuration |                        | PC1<br>PC3(NOTE 1)         |                         |
| 7.6.2.21     | NR SA FR2-FR2 event triggered reporting using MUSIM gap with shorter MGRP        | Rel-18  | C351b         | UEs supporting 5GS NR SA FR2 and providing MUSIM assistance information with MUSIM gap preference and related MUSIM gap configuration |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.6.3</b> | <b>L1-RSRP for beam reporting</b>                                                |         |               |                                                                                                                                       |                        |                            |                         |
| 7.6.3.1      | NR SA FR2 SSB-based L1-RSRP measurement in non-DRX                               | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                          |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.3.2      | NR SA FR2 SSB-based L1-RSRP measurement in DRX                                   | Rel-15  | C006a         | UEs supporting 5GS NR SA FR2 and long DRX cycle                                                                                       |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.3.3      | NR SA FR2 CSI-RS-based L1-RSRP measurement in non-DRX                            | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                          |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.3.4      | NR SA FR2 CSI-RS-based L1-RSRP measurement in DRX                                | Rel-15  | C006a         | UEs supporting 5GS NR SA FR2 and long DRX cycle                                                                                       |                        | PC1(NOTE 1)<br>PC3         |                         |

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|               |                                                                                                                                    |         | Condition     | Comment                                                                                                                                                                                                                                 |                        |                            |                         |
| 7.6.3.5       | NR SA FR2 SSB based L1-RSRP measurement test when DRX is used for power class 6 UE configured with <i>highSpeedMeasFlagFR2-r17</i> | Rel-17  | C240          | power class 6 UEs supporting 5GS NR SA FR2 configured and HST intra-frequency measurements                                                                                                                                              |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.6.3.6       | NR SA FR2 Inter-cell SSB based L1-RSRP measurements on FR2 SCell when DRX is not used                                              | Rel-17  | C006p         | UEs supporting 5GS NR SA FR2 and Inter-band CA (2UL CA)                                                                                                                                                                                 |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.4.1       | NR SA FR2 SRS-RSRP measurement in non-DRX                                                                                          | Rel-16  | C006l         | UEs supporting 5GS NR SA FR2 and SRS-RSRP measurements                                                                                                                                                                                  |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.6.6</b>  | <b>L1-SINR measurement for beam reporting</b>                                                                                      |         |               |                                                                                                                                                                                                                                         |                        |                            |                         |
| 7.6.6.1       | NR SA FR2 CSI-RS based CMR and no dedicated IMR L1-SINR measurement in non-DRX                                                     | Rel-16  | C144a         | UEs supporting 5GS NR SA FR2 and L1-SINR measurement based on CSI-RS as CMR without dedicated IMR configured                                                                                                                            |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.6.2       | NR SA FR2 SSB based CMR and dedicated IMR L1-SINR measurement in DRX                                                               | Rel-16  | C145a         | UEs supporting 5GS NR SA FR2 and long DRX cycle and L1-SINR measurement based on SSB as CMR and dedicated CSI-IM as IMR                                                                                                                 |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.6.3       | NR SA FR2 CSI-RS based CMR and dedicated IMR L1-SINR measurement in DRX                                                            | Rel-16  | C146a         | UEs supporting 5GS NR SA FR2 and long DRX cycle and L1-SINR measurement based on CSI-RS as CMR and dedicated CSI-RS as IMR                                                                                                              |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.6.13</b> | <b>UE Rx-Tx time difference measurements for PDC</b>                                                                               |         |               |                                                                                                                                                                                                                                         |                        |                            |                         |
| 7.6.13.1      | NR SA FR2 UE Rx-Tx time difference measurement for propagation delay compensation using PRS                                        | Rel-17  | C212          | UEs supporting 5GS NR SA FR2 and RTT-based PDC for Rx-Tx measurement with PRS                                                                                                                                                           |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.6.13.2      | NR SA FR2 UE Rx-Tx time difference measurement for propagation delay compensation using TRS                                        | Rel-17  | C213          | UEs supporting 5GS NR SA FR2 and RTT-based PDC for Rx-Tx measurement with TRS                                                                                                                                                           |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.6.14</b> | <b>SA event triggered reporting tests with Pre-MG</b>                                                                              |         |               |                                                                                                                                                                                                                                         |                        |                            |                         |
| 7.6.14.1      | NR SA FR2 event triggered reporting tests with pre-configured measurement gaps and autonomous activation/deactivation              | Rel-17  | C290          | UEs supporting 5GS NR SA FR2, BWP adaptation of at least 2 BWPs, BWP operation without bandwidth restriction, DCI and timer-based active BWP switching delay Type1 or Type2, CSI-RS-based RLM and preconfiguredUE-AutonomousMeasGap-r17 |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |

| Clause        | TC Title                                                                                                                                                                    | Release | Applicability |                                                                                                                                                                                                                                         | Additional Information | Branch                                        | Test Selection Criteria |
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|               |                                                                                                                                                                             |         | Condition     | Comment                                                                                                                                                                                                                                 |                        |                                               |                         |
| 7.6.14.2      | NR SA FR2 event triggered reporting tests with pre-configured measurement gaps and network-controlled activation/deactivation                                               | Rel-17  | C291          | UEs supporting 5GS NR SA FR2, BWP adaptation of at least 2 BWPs, BWP operation without bandwidth restriction, DCI and timer-based active BWP switching delay Type1 or Type2, CSI-RS-based RLM and preconfiguredNW-ControlledMeasGap-r17 |                        | PC1(NOTE 1)<br>PC3(NOTE 1)                    |                         |
| <b>7.6.15</b> | <b>SA event triggered reporting tests with concurrent gaps</b>                                                                                                              |         |               |                                                                                                                                                                                                                                         |                        |                                               |                         |
| 7.6.15.1      | NR SA FR2 event triggered reporting tests with fully non-overlapping concurrent MGs for SSB-based inter-frequency measurements                                              | Rel-17  | C292          | UEs supporting 5GS NR SA FR2 and more than 1 per-UE measurement gap configurations                                                                                                                                                      |                        | PC1(NOTE 1)<br>PC3(NOTE 1)                    |                         |
| 7.6.15.2      | NR SA FR2 event triggered reporting tests with concurrent measurement gaps without SSB time index detection when DRX is not used (PCell in FR2)                             | Rel-17  | C292          | UEs supporting 5GS NR SA FR2 and more than 1 per-UE measurement gap configurations                                                                                                                                                      |                        | PC1(NOTE 1)<br>PC3(NOTE 1)                    |                         |
| 7.6.15.3      | NR SA FR2 event triggered reporting tests with concurrent measurement gaps with partially partial overlapping scenario for SSB-based measurements and PRS-based measurement | Rel-17  | C293          | UEs supporting 5GS NR SA FR2 and more than 1 per-UE measurement gap configurations and two independent measurement gap configurations for FR1 and FR2 for PRS measurement                                                               |                        | PC1(NOTE 1)<br>PC3(NOTE 1)                    |                         |
| <b>7.6.16</b> | <b>SA event triggered reporting tests with NCSG</b>                                                                                                                         |         |               |                                                                                                                                                                                                                                         |                        |                                               |                         |
| 7.6.16.1      | NR SA FR2 event triggered reporting tests with per-UE NCSG under non-DRX                                                                                                    | Rel-17  | C294          | UEs supporting 5GS NR SA FR2, CSI-RS-based RLM, BWP operation without bandwidth restriction, per-FR NCSG, reporting of NCSG requirement information and NR only NCSG patterns                                                           |                        | PC1(NOTE 1)<br>PC3(NOTE 1)                    |                         |
| 7.6.16.2      | NR SA FR2 event triggered reporting tests on inter-frequency measurement with NCSG when DRX is not used (PCell in FR2)                                                      | Rel-17  | C295          | UEs supporting 5GS NR SA FR2, reporting of NCSG requirement information and NR only NCSG patterns but not supporting ncsg-MeasGapPerFR-r17                                                                                              |                        | For sub-test 1:<br>PC1(NOTE 1)<br>PC3(NOTE 1) |                         |

| Clause        | TC Title                                                                                          | Release | Applicability |                                                                                                                       | Additional Information | Branch                                        | Test Selection Criteria |
|---------------|---------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------|-------------------------|
|               |                                                                                                   |         | Condition     | Comment                                                                                                               |                        |                                               |                         |
|               |                                                                                                   |         | C296          | UEs supporting 5GS NR SA FR2, per-FR NCSG, reporting of NCSG requirement information and NR only NCSG patterns        |                        | For sub-test 2:<br>PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| 7.6.16.3      | NR SA FR2 event triggered reporting tests on deactivated SCell measurement via NCSG in non-DRX    | Rel-17  | C297          | UEs supporting 5GS NR SA FR2, CA (2DL CA), reporting of NCSG requirement information and NR only NCSG patterns        |                        | PC1(NOTE 1)<br>PC3(NOTE 1)                    |                         |
| <b>7.6.17</b> | <b>SA event triggered reporting tests for concurrent measurement gaps with Pre-MG in FR2</b>      |         |               |                                                                                                                       |                        |                                               |                         |
| 7.6.17.1      | NR SA FR2 and FR2-FR2 event-triggered reporting with concurrent Type-2 measurement gap and Pre-MG | Rel-18  | FFS           | FFS                                                                                                                   | NOTE 1                 |                                               |                         |
| 7.6.17.2      | NR SA FR2-FR2 event-triggered reporting with two concurrent Pre-MGs                               | Rel-18  | FFS           | FFS                                                                                                                   | NOTE 1                 |                                               |                         |
| <b>7.6.18</b> | <b>SA event triggered reporting tests with concurrent gaps and NCSG</b>                           |         |               |                                                                                                                       |                        |                                               |                         |
| 7.6.18.1      | NR SA FR2 event-triggered reporting with concurrent Type-2 measurement gap and NCSG               | Rel-18  | FFS           | FFS                                                                                                                   | NOTE 1                 |                                               |                         |
| <b>7.9.19</b> | <b>SA event triggered reporting tests with NeedForGap in FR2</b>                                  |         |               |                                                                                                                       |                        |                                               |                         |
| 7.6.19.1      | NR SA FR2 event-triggered reporting without interruption outside gap                              | Rel-18  | FFS           | FFS                                                                                                                   | NOTE 1                 |                                               |                         |
| 7.6.19.2      | NR SA FR2-FR2 SA event triggered reporting test without gap without interruption                  | Rel-18  | FFS           | FFS                                                                                                                   | NOTE 1                 |                                               |                         |
| 7.6.19.3      | NR SA FR2-event triggered reporting test without gap without interruption under non-DRX           | Rel-18  | FFS           | FFS                                                                                                                   | NOTE 1                 |                                               |                         |
| <b>7.6.20</b> | <b>LTM Intra-frequency L1-RSRP measurement</b>                                                    |         |               |                                                                                                                       |                        |                                               |                         |
| 7.6.20.1      | NR SA FR2 SSB based L1-RSRP measurement                                                           | Rel-18  | C384          | UEs supporting 5GS NR SA FR2, intra-frequency L1- RSRP measurement and reporting based on SSB(s) of candidate cell(s) |                        | PC1(NOTE 1)<br>PC3                            | Subtest 2:<br>F029      |
| <b>7.6.21</b> | <b>LTM Inter-frequency L1-RSRP measurement with measurement gap</b>                               |         |               |                                                                                                                       |                        |                                               |                         |
| 7.6.21.1      | NR SA FR2-FR2 SSB-based L1-RSRP measurement with measurement gap for LTM                          | Rel-18  | C385          | UEs supporting 5GS NR SA FR2, inter-frequency L1- RSRP measurement and reporting based on SSB(s) of candidate cell(s) |                        | PC1(NOTE 1)<br>PC3                            |                         |

| Clause         | TC Title                                                                                                                            | Release | Applicability |                                                                                                                                            | Additional Information | Branch                     | Test Selection Criteria |
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|                |                                                                                                                                     |         | Condition     | Comment                                                                                                                                    |                        |                            |                         |
| <b>7.6.22</b>  | <b>LTM Inter-frequency L1-RSRP measurement without measurement gap</b>                                                              |         |               |                                                                                                                                            |                        |                            |                         |
| 7.6.22.1       | NR SA FR2 event triggered reporting tests with per-UE NCSG under non-DRX                                                            | Rel-18  | C361a         | UEs supporting 5GS NR SA FR2, SSB based inter-frequency L1-RSRP measurements on SSBs within active DL BWP without measurement gaps for LTM | NOTE 1                 |                            |                         |
| <b>7.7</b>     | <b>Measurement performance requirements</b>                                                                                         |         |               |                                                                                                                                            |                        |                            |                         |
| <b>7.7.1</b>   | <b>SS-RSRP</b>                                                                                                                      |         |               |                                                                                                                                            |                        |                            |                         |
| 7.7.1.1        | NR SA FR2 SS-RSRP measurement accuracy                                                                                              | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1<br>PC3                 |                         |
| 7.7.1.2        | NR SA FR2-FR2 SS-RSRP measurement accuracy                                                                                          | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.7.1.3</b> | <b>Inter-frequency measurements between FR1 and FR2</b>                                                                             |         |               |                                                                                                                                            |                        |                            |                         |
| 7.7.1.3.1      | NR SA FR1-FR2 SS-RSRP measurement accuracy                                                                                          | Rel-15  | N/A           | Not recommended due to FR1 – FR2 testability issue                                                                                         |                        | PC1(NOTE 1)<br>PC3(NOTE 1) |                         |
| <b>7.7.2</b>   | <b>SS-RSRQ</b>                                                                                                                      |         |               |                                                                                                                                            |                        |                            |                         |
| 7.7.2.1        | NR SA FR2 SS-RSRQ measurement accuracy                                                                                              | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.7.2.2        | NR SA FR2-FR2 SS-RSRQ measurement accuracy                                                                                          | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.7.3</b>   | <b>SS-SINR</b>                                                                                                                      |         |               |                                                                                                                                            |                        |                            |                         |
| 7.7.3.1        | NR SA FR2 SS-SINR measurement accuracy                                                                                              | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.7.3.2        | NR SA FR2-FR2 SS-SINR measurement accuracy                                                                                          | Rel-16  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.7.4</b>   | <b>L1-RSRP for beam reporting</b>                                                                                                   |         |               |                                                                                                                                            |                        |                            |                         |
| 7.7.4.1        | NR SA FR2 SSB based L1-RSRP measurement accuracy                                                                                    | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| 7.7.4.2        | NR SA FR2 CSI-RS based L1-RSRP measurement accuracy                                                                                 | Rel-15  | C006          | UEs supporting 5GS NR SA FR2                                                                                                               |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.7.5</b>   |                                                                                                                                     |         |               |                                                                                                                                            |                        |                            |                         |
| 7.7.5.1        | NR SA FR2 SRS-RSRP measurement accuracy                                                                                             | Rel-16  | C006l         | UEs supporting 5GS NR SA FR2 and SRS-RSRP measurements                                                                                     |                        | PC1(NOTE 1)<br>PC3         |                         |
| <b>7.7.6</b>   | <b>L1-SINR</b>                                                                                                                      |         |               |                                                                                                                                            |                        |                            |                         |
| 7.7.6.1        | NR SA FR2 CSI-RS based CMR and no dedicated IMR configured and CSI-RS resource set with repetition off L1-SINR measurement accuracy | Rel-16  | C138          | UEs supporting 5GS NR SA FR2 and L1-SINR-measurement based on CSI-RS as CMR without dedicated IMR configured                               |                        | PC1(NOTE 1)<br>PC3         |                         |

| Clause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TC Title                                                                       | Release | Applicability |                                                                                                                       | Additional Information | Branch             | Test Selection Criteria |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|-------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |         | Condition     | Comment                                                                                                               |                        |                    |                         |
| 7.7.6.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | NR SA FR2 SSB based CMR and dedicated IMR L1-SINR measurement accuracy         | Rel-16  | C139          | UEs supporting 5GS NR SA FR2 and L1-SINR-measurement based on SSB as CMR and dedicated CSI-IM as IMR                  |                        | PC1(NOTE 1)<br>PC3 |                         |
| 7.7.6.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | NR SA FR2 CSI-RS based CMR and dedicated IMR L1-SINR measurement accuracy      | Rel-16  | C140          | UEs supporting 5GS NR SA FR2 and L1-SINR-measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR               |                        | PC1(NOTE 1)<br>PC3 |                         |
| <b>7.7.14</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>L1-RSRP measurement for group-based beam reporting</b>                      |         |               |                                                                                                                       |                        |                    |                         |
| 7.7.14.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | NR SA FR2 SSB based L1-RSRP measurement for group-based beam reporting         | Rel-18  | C378          | UEs supporting 5GS NR SA FR2 and perform group based L1-RSRP measurement based on SSB resources.                      | NOTE 1                 |                    |                         |
| 7.7.14.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | NR SA FR2 CSI-RS based L1-RSRP measurement on resource set with repetition off | Rel-18  | C378          | UEs supporting 5GS NR SA FR2 and perform group based L1-RSRP measurement based on CSI-RS resources.                   | NOTE 1                 |                    |                         |
| <b>7.7.15</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>LTM L1-RSRP measurement</b>                                                 |         |               |                                                                                                                       |                        |                    |                         |
| 7.7.15.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | NR SA FR2-FR2 SSB based L1-RSRP measurement                                    | Rel-18  | C385          | UEs supporting 5GS NR SA FR2, inter-frequency L1- RSRP measurement and reporting based on SSB(s) of candidate cell(s) |                        | PC1(NOTE 1)<br>PC3 |                         |
| <p>NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533.</p> <p>NOTE 2: Void.</p> <p>NOTE 3: Void.</p> <p>NOTE 4: Test cases in TS 38.533 [5] clause 7 only apply to FR2 non-RedCap UEs. For FR2 RedCap UEs, Test cases in TS 38.533 [5] clause 17 apply.</p> |                                                                                |         |               |                                                                                                                       |                        |                    |                         |

Table 4.2-4a: Void

**Table 4.2-5: Applicability of E-UTRA – NR Inter-RAT conformance test cases, ref. TS 38.533 [5]**

| Clause       | TC Title                                                                                                                 | Release | Applicability |                                                                                                                     | Additional Information | Branch     | Subtest Selection Criteria |
|--------------|--------------------------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|              |                                                                                                                          |         | Condition     | Comment                                                                                                             |                        |            |                            |
| <b>8.2</b>   | <b>RRC_IDLE state mobility</b>                                                                                           |         |               |                                                                                                                     |                        |            |                            |
| <b>8.2.1</b> | <b>Inter-RAT cell re-selection</b>                                                                                       |         |               |                                                                                                                     |                        |            |                            |
| 8.2.1.1      | E-UTRA - NR FR1 cell re-selection to higher priority NR target cell                                                      | Rel-15  | C025          | UEs supporting 5GS NR SA FR1 and E-UTRA                                                                             |                        | 2Rx<br>4Rx |                            |
| 8.2.1.2      | E-UTRA - NR FR1 Cell reselection to lower priority NR target Cell in FR1 for UE configured with highSpeedInterRAT-NR-r16 | Rel-16  | C025d         | UEs supporting 5GS NR SA FR1 and E-UTRAN and NR inter-RAT measurement enhancement in HST                            |                        | 2Rx<br>4Rx |                            |
| <b>8.2.2</b> | <b>E-UTRA - NR Inter-RAT Early Measurement Reporting</b>                                                                 |         |               |                                                                                                                     |                        |            |                            |
| 8.2.2.1      | E-UTRA - NR FR1 Early Measurement Reporting                                                                              | Rel-16  | C025f         | UEs supporting 5GS NR SA FR1 and E-UTRA and NR FR1 SSB measurements in RRC_IDLE/RRC_INACTIVE                        | NOTE 1                 | 2Rx<br>4Rx |                            |
| 8.2.2.2      | E-UTRA - NR FR2 Early Measurement Reporting                                                                              | Rel-16  | N/A           | Not recommended due to E-UTRA/FR1 – FR2 testability issue                                                           | NOTE 1                 | 2Rx<br>4Rx |                            |
| <b>8.3</b>   | <b>RRC_CONNECTED state mobility</b>                                                                                      |         |               |                                                                                                                     |                        |            |                            |
| <b>8.3.1</b> | <b>Inter-RAT cell handover</b>                                                                                           |         |               |                                                                                                                     |                        |            |                            |
| 8.3.1.1      | E-UTRA - NR FR1 handover with known target cell                                                                          | Rel-15  | C025          | UEs supporting 5GS NR SA FR1 and E-UTRA                                                                             |                        | 2Rx<br>4Rx |                            |
| <b>8.4</b>   | <b>Measurement procedures</b>                                                                                            |         |               |                                                                                                                     |                        |            |                            |
| <b>8.4.1</b> | <b>SFTD measurement delay</b>                                                                                            |         |               |                                                                                                                     |                        |            |                            |
| 8.4.1.1      | E-UTRA - NR FR1 SFTD measurement delay in non-DRX                                                                        | Rel-15  | C081          | UEs supporting EN-DC and E-UTRA and SFTD measurements between E-UTRA Pcell and NR neighbour cell                    |                        | 2Rx<br>4Rx |                            |
| 8.4.1.2      | E-UTRA - NR FR1 SFTD measurement delay in DRX                                                                            | Rel-15  | C081a         | UEs supporting EN-DC and E-UTRA and long DRX cycle and SFTD measurements between E-UTRA Pcell and NR neighbour cell |                        | 2Rx<br>4Rx |                            |
| <b>8.4.2</b> | <b>Inter-RAT measurements</b>                                                                                            |         |               |                                                                                                                     |                        |            |                            |
| 8.4.2.1      | E-UTRA event-triggered reporting of a NR FR1 neighbour cell without SSB time index detection in non-DRX                  | Rel-15  | C086          | UEs supporting E-UTRA and NR FR1 measurement                                                                        |                        | 2Rx<br>4Rx |                            |
| 8.4.2.2      | E-UTRA event-triggered reporting of a NR FR1 neighbour cell without SSB time index detection in DRX                      | Rel-15  | C086a         | UEs supporting E-UTRA and NR FR1 measurement and long DRX cycle                                                     |                        | 2Rx<br>4Rx |                            |
| 8.4.2.3      | E-UTRA event-triggered reporting of a NR FR1 neighbour cell with SSB time index detection in non-DRX                     | Rel-15  | C086          | UEs supporting E-UTRA and NR FR1 measurement                                                                        |                        | 2Rx<br>4Rx |                            |

| Clause         | TC Title                                                                                                                                         | Release | Applicability |                                                                                                          | Additional Information | Branch     | Subtest Selection Criteria |
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|                |                                                                                                                                                  |         | Condition     | Comment                                                                                                  |                        |            |                            |
| 8.4.2.4        | E-UTRA event-triggered reporting of a NR FR1 neighbour cell with SSB time index detection in DRX                                                 | Rel-15  | C086a         | UEs supporting E-UTRA and NR FR1 measurement and long DRX cycle                                          |                        | 2Rx<br>4Rx |                            |
| 8.4.2.5        | E-UTRA event-triggered reporting of a NR FR2 neighbour cell without SSB time index detection in non-DRX                                          | Rel-15  | N/A           | Not recommended due to E-UTRA – FR2 testability issue                                                    | NOTE 1                 |            |                            |
| 8.4.2.6        | E-UTRA event-triggered reporting of a NR FR2 neighbour cell without SSB time index detection in DRX                                              | Rel-15  | N/A           | Not recommended due to E-UTRA – FR2 testability issue                                                    | NOTE 1                 |            |                            |
| 8.4.2.7        | E-UTRA event-triggered reporting of a NR FR2 neighbour cell with SSB time index detection in non-DRX                                             | Rel-15  | N/A           | Not recommended due to E-UTRA – FR2 testability issue                                                    | NOTE 1                 |            |                            |
| 8.4.2.8        | E-UTRA event-triggered reporting of a NR FR2 neighbour cell with SSB time index detection in DRX                                                 | Rel-15  | N/A           | Not recommended due to E-UTRA – FR2 testability issue                                                    | NOTE 1                 |            |                            |
| 8.4.2.9        | E-UTRA event triggered reporting of a NR FR1 neighbour cell with SSB time index detection in DRX for UE configured with highSpeedInterRAT-NR-r16 | Rel-16  | C025e         | UEs supporting 5GS NR SA FR1 and E-UTRAN, long DRX cycle and NR inter-RAT measurement enhancement in HST |                        | 2Rx<br>4Rx |                            |
| <b>8.4.3</b>   | <b>Inter-RAT measurements without gaps</b>                                                                                                       |         |               |                                                                                                          |                        |            |                            |
| 8.4.3.1        | E-UTRAN - NR SA FR2 event-triggered reporting without gap with interruption                                                                      | Rel-18  | FFS           | FFS                                                                                                      | NOTE 1                 |            |                            |
| 8.4.3.2        | E-UTRAN - NR SA FR1 event-triggered reporting without gap                                                                                        | Rel-18  | C407          | UEs supporting E-UTRA and performing NR FR1 measurement without measurement gap                          | NOTE 1                 | 2Rx<br>4Rx |                            |
| <b>8.5</b>     | <b>Measurement performance requirements</b>                                                                                                      |         |               |                                                                                                          |                        |            |                            |
| <b>8.5.1</b>   | <b>SFTD measurement accuracy</b>                                                                                                                 |         |               |                                                                                                          |                        |            |                            |
| 8.5.1.1        | E-UTRA - NR FR1 SFTD measurement accuracy                                                                                                        | Rel-15  | C081          | UEs supporting EN-DC and E-UTRA and SFTD measurements between E-UTRA Pcell and NR neighbour cell         | NOTE 1                 | 2Rx<br>4Rx |                            |
| <b>8.5.2</b>   | <b>Inter-RAT</b>                                                                                                                                 |         |               |                                                                                                          |                        |            |                            |
| <b>8.5.2.1</b> | <b>SS-RSRP</b>                                                                                                                                   |         |               |                                                                                                          |                        |            |                            |
| 8.5.2.1.1.1    | E-UTRA SS-RSRP absolute measurement accuracy of a NR FR1 neighbour cell                                                                          | Rel-15  | C086          | UEs supporting E-UTRA and NR FR1 measurement                                                             |                        | 2Rx<br>4Rx |                            |
| 8.5.2.1.2      | E-UTRA SS-RSRP absolute measurement accuracy of a NR FR2 neighbour cell                                                                          | Rel-15  | C080          | UEs supporting E-UTRA and NR FR2 measurement                                                             |                        | 2Rx        |                            |
| <b>8.5.2.2</b> | <b>SS-RSRQ</b>                                                                                                                                   |         |               |                                                                                                          |                        |            |                            |
| 8.5.2.2.1      | E-UTRA SS-RSRQ absolute measurement accuracy of a NR FR1 neighbour cell                                                                          | Rel-15  | C086          | UEs supporting E-UTRA and NR FR1 measurement                                                             |                        | 2Rx<br>4Rx |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                | Release | Applicability |                                              | Additional Information | Branch     | Subtest Selection Criteria |
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|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         |         | Condition     | Comment                                      |                        |            |                            |
| 8.5.2.2.2                                                                                                                                                                                                                                                                                                                                                                                | E-UTRA SS-RSRQ absolute measurement accuracy of a NR FR2 neighbour cell | Rel-15  | C080          | UEs supporting E-UTRA and NR FR2 measurement |                        | 2Rx        |                            |
| <b>8.5.2.3</b>                                                                                                                                                                                                                                                                                                                                                                           | <b>SS-SINR</b>                                                          |         |               |                                              |                        |            |                            |
| 8.5.2.3.1                                                                                                                                                                                                                                                                                                                                                                                | E-UTRA SS-SINR absolute measurement accuracy of a NR FR1 neighbour cell | Rel-15  | C086          | UEs supporting E-UTRA and NR FR1 measurement |                        | 2Rx<br>4Rx |                            |
| 8.5.2.3.2                                                                                                                                                                                                                                                                                                                                                                                | E-UTRA SS-SINR absolute measurement accuracy of a NR FR2 neighbour cell | Rel-15  | C080          | UEs supporting E-UTRA and NR FR2 measurement |                        | 2Rx        |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                         |         |               |                                              |                        |            |                            |
| NOTE 2: Test cases in TS 38.533 [5] clause 8 only apply to non-RedCap UEs. For RedCap UEs, Test cases in TS 38.533 [5] clause 18 apply.                                                                                                                                                                                                                                                  |                                                                         |         |               |                                              |                        |            |                            |

Table 4.2-6: Applicability of NR sidelink FR1 conformance test cases, ref. TS 38.533 [5]

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                                                                                      | Release | Applicability |                                                  | Additional Information | Branch |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------|------------------------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                               |         | Condition     | Comment                                          |                        |        |
| <b>9.1.1</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>UE transmit timing</b>                                                                                                                     |         |               |                                                  |                        |        |
| 9.1.1.1                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 UE transmit timing accuracy for GNSS as synchronization reference source                                                            | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink           | NOTE 1                 | 2Rx    |
| 9.1.1.2                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 UE transmit timing accuracy for SyncRef UE as synchronization reference source                                                      | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink           | NOTE 1                 | 2Rx    |
| 9.1.1.3                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 UE transmit timing accuracy for FR1 NR cell as synchronization reference source                                                     | Rel-16  | C079a         | UE supporting 5GS FR1 and NR Uu and NR sidelink. | NOTE 1                 | 2Rx    |
| <b>9.1.2</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>Initiation/Cease of S-SSB transmission</b>                                                                                                 |         |               |                                                  |                        |        |
| 9.1.2.1                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 initiation/cease of S-SSB transmission for FR1 NR cell as synchronization reference source                                          | Rel-16  | C079a         | UE supporting 5GS FR1 and NR Uu and NR sidelink. | NOTE 1                 | 2Rx    |
| 9.1.2.2                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 initiation/cease of S-SSB transmission for SyncRef UE as synchronization reference source                                           | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink           | NOTE 1                 | 2Rx    |
| <b>9.1.3</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>Synchronization reference selection/reselection</b>                                                                                        |         |               |                                                  |                        |        |
| 9.1.3.1                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 synchronization reference selection/reselection for GNSS configured as the highest priority synchronization reference source        | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink           | NOTE 1                 | 2Rx    |
| 9.1.3.2                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 synchronization reference selection/reselection for FR1 NR Cell configured as the highest priority synchronization reference source | Rel-16  | C079a         | UE supporting 5GS FR1 and NR Uu and NR sidelink. | NOTE 1                 | 2Rx    |
| <b>9.1.4</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>L1 SL-RSRP measurements</b>                                                                                                                |         |               |                                                  |                        |        |
| 9.1.4.1                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 L1 SL-RSRP measurement for autonomous resource selection/reselection                                                                | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink           | NOTE 1                 | 2Rx    |
| 9.1.4.2                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 L1 SL-RSRP measurement for resource pre-emption                                                                                     | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink           | NOTE 1                 | 2Rx    |
| 9.1.4.3                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 L1 SL-RSRP measurement for resource re-evaluation                                                                                   | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink           | NOTE 1                 | 2Rx    |
| <b>9.1.5</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>Congestion control measurement</b>                                                                                                         |         |               |                                                  |                        |        |
| 9.1.5.1                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 congestion control measurement for concurrent operation                                                                             | Rel-16  | C079a         | UE supporting 5GS FR1 and NR Uu and NR sidelink. | NOTE 1                 | 2Rx    |
| 9.1.5.2                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 congestion control measurement for PC5-only operation                                                                               | Rel-16  | C079          | UEs supporting 5GS FR1 and NR sidelink           | NOTE 1                 | 2Rx    |
| <b>9.1.6</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>Interruption</b>                                                                                                                           |         |               |                                                  |                        |        |
| 9.1.6.1                                                                                                                                                                                                                                                                                                                                                                                  | NR SA FR1 interruption to WAN due to NR sidelink communication                                                                                | Rel-16  | C079a         | UE supporting 5GS FR1 and NR Uu and NR sidelink. | NOTE 1                 | 2Rx    |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                                                                                               |         |               |                                                  |                        |        |

**Table 4.2-7: Applicability of RRM NR SA FR1 conformance test cases for RedCap, ref. TS 38.533 [5]**

| Clause        | TC Title                                                                                                                             | Release | Applicability |                                                                                 | Additional Information | Branch | Test Selection Criteria |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|               |                                                                                                                                      |         | Condition     | Comment                                                                         |                        |        |                         |
| <b>16.1</b>   | <b>RRC_IDLE state mobility for RedCap</b>                                                                                            |         |               |                                                                                 |                        |        |                         |
| <b>16.1.1</b> | <b>NR cell re-selection for RedCap</b>                                                                                               |         |               |                                                                                 |                        |        |                         |
| 16.1.1.1      | NR SA FR1 Cell reselection to FR1 intra-frequency NR case for 1 Rx UE                                                                | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                         |                        |        |                         |
| 16.1.1.2      | NR SA FR1 Cell reselection to FR1 intra-frequency NR case for 2 Rx UE                                                                | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                         |                        |        |                         |
| 16.1.1.3      | NR SA FR1-FR1 Cell reselection to FR1 inter-frequency NR case for 1 Rx UE                                                            | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                         |                        |        |                         |
| 16.1.1.4      | NR SA FR1-FR1 Cell reselection to FR1 inter-frequency NR case for 2 Rx UE                                                            | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                         |                        |        |                         |
| 16.1.1.5      | NR SA FR1 Cell reselection to FR1 intra-frequency NR case for UE fulfilling stationary relaxed measurement criterion for 1 Rx UE     | Rel-17  | C208          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and relaxed RRM measurements            |                        |        |                         |
| 16.1.1.6      | NR SA FR1 Cell reselection to FR1 intra-frequency NR case for UE fulfilling stationary relaxed measurement criterion for 2 Rx UE     | Rel-17  | C209          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and relaxed RRM measurements            |                        |        |                         |
| 16.1.1.7      | NR SA FR1-FR1 Cell reselection to FR1 inter-frequency NR case for UE fulfilling stationary relaxed measurement criterion for 1 Rx UE | Rel-17  | C208          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and relaxed RRM measurements            |                        |        |                         |
| 16.1.1.8      | NR SA FR1-FR1 Cell reselection to FR1 inter-frequency NR case for UE fulfilling stationary relaxed measurement criterion for 2 Rx UE | Rel-17  | C209          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and relaxed RRM measurements            |                        |        |                         |
| <b>16.1.2</b> | <b>NR - E-UTRA cell re-selection for RedCap</b>                                                                                      |         |               |                                                                                 |                        |        |                         |
| 16.1.2.1      | NR SA FR1 - E-UTRA Cell reselection to higher priority E-UTRA for 1RX UE                                                             | Rel-17  | C181          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                              |                        |        |                         |
| 16.1.2.2      | NR SA FR1 - E-UTRA Cell reselection to higher priority E-UTRA for 2RX UE                                                             | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                              |                        |        |                         |
| 16.1.2.3      | NR SA FR1 - E-UTRA Cell reselection to lower priority E-UTRA for 1RX UE                                                              | Rel-17  | C181          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                              |                        |        |                         |
| 16.1.2.4      | NR SA FR1 - E-UTRA Cell reselection to lower priority E-UTRA for 2RX UE                                                              | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                              |                        |        |                         |
| 16.1.2.5      | NR SA FR1 - E-UTRA Cell reselection to lower priority E-UTRA for UE fulfilling stationary relaxed measurement criterion for 1 Rx UE  | Rel-17  | C210          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA and relaxed RRM measurements |                        |        |                         |

| Clause          | TC Title                                                                                                                            | Release | Applicability |                                                                                              | Additional Information | Branch | Test Selection Criteria |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                                                                                     |         | Condition     | Comment                                                                                      |                        |        |                         |
| 16.1.2.6        | NR SA FR1 - E-UTRA Cell reselection to lower priority E-UTRA for UE fulfilling stationary relaxed measurement criterion for 2 Rx UE | Rel-17  | C211          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA and relaxed RRM measurements              |                        |        |                         |
| <b>16.2</b>     | <b>RRC_INACTIVE state mobility for RedCap</b>                                                                                       |         |               |                                                                                              |                        |        |                         |
| <b>16.2.1</b>   | <b>Configured Grant based Small Data Transmissions for RedCap</b>                                                                   |         |               |                                                                                              |                        |        |                         |
| 16.2.1.1        | NR SA FR1 CG-SDT for 1Rx UE                                                                                                         | Rel-17  | C300          | 1Rx RedCap UEs supporting 5GS NR SA FR1, CG-based small data transmission and long DRX cycle |                        |        |                         |
| 16.2.1.2        | NR SA FR1 CG-SDT for 2Rx UE                                                                                                         | Rel-17  | C301          | 2Rx RedCap UEs supporting 5GS NR SA FR1, CG-based small data transmission and long DRX cycle |                        |        |                         |
| <b>16.3</b>     | <b>RRC_CONNECTED state mobility for RedCap</b>                                                                                      |         |               |                                                                                              |                        |        |                         |
| <b>16.3.1</b>   | <b>Handover for RedCap</b>                                                                                                          |         |               |                                                                                              |                        |        |                         |
| 16.3.1.1        | NR SA FR1 handover with known target cell for 1 Rx UE                                                                               | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                      |                        |        |                         |
| 16.3.1.2        | NR SA FR1 handover with known target cell for 2 Rx UE                                                                               | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                      |                        |        |                         |
| 16.3.1.3        | NR SA FR1 handover with unknown target cell for 1 Rx UE                                                                             | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                      |                        |        |                         |
| 16.3.1.4        | NR SA FR1 handover unknown target cell for 2 Rx UE                                                                                  | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                      |                        |        |                         |
| 16.3.1.5        | NR SA FR1-FR1 handover with unknown target cell for 1 Rx UE                                                                         | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                      |                        |        |                         |
| 16.3.1.6        | NR SA FR1-FR1 handover with unknown target cell for 2 Rx UE                                                                         | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                      |                        |        |                         |
| 16.3.1.7        | NR - E-UTRA handover with known target cell for 1Rx UE                                                                              | Rel-17  | C181          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                           |                        |        |                         |
| 16.3.1.8        | NR - E-UTRA handover with known target cell for 2Rx UE                                                                              | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                           |                        |        |                         |
| 16.3.1.9        | NR - E-UTRA handover with unknown target cell for 1 Rx UE                                                                           | Rel-17  | C181          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                           |                        |        |                         |
| 16.3.1.10       | NR - E-UTRA handover with unknown target cell for 2 Rx UE                                                                           | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                           |                        |        |                         |
| <b>16.3.2</b>   | <b>RRC connection mobility control for RedCap</b>                                                                                   |         |               |                                                                                              |                        |        |                         |
| <b>16.3.2.1</b> | <b>RRC re-establishment for RedCap</b>                                                                                              |         |               |                                                                                              |                        |        |                         |

| Clause          | TC Title                                                                                              | Release | Applicability |                                                         | Additional Information | Branch | Test Selection Criteria |
|-----------------|-------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                                                       |         | Condition     | Comment                                                 |                        |        |                         |
| 16.3.2.1.1      | NR SA FR1 RRC Re-establishment for 1 Rx UE                                                            | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |
| 16.3.2.1.2      | NR SA FR1 RRC Re-establishment for 2 Rx UE                                                            | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |
| 16.3.2.1.3      | NR SA FR1-FR1 RRC Re-establishment for 1 Rx UE                                                        | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |
| 16.3.2.1.4      | NR SA FR1-FR1 RRC Re-establishment for 2 Rx UE                                                        | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |
| 16.3.2.1.5      | NR SA FR1 RRC Re-establishment for 1 Rx UE without serving cell timing                                | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |
| 16.3.2.1.6      | NR SA FR1 RRC Re-establishment for 2 Rx UE without serving cell timing                                | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |
| <b>16.3.2.2</b> | <b>Random access for RedCap</b>                                                                       |         |               |                                                         |                        |        |                         |
| 16.3.2.2.1      | NR SA FR1 4-step RA type contention based random access test in FR1 for NR standalone for 1 Rx UE     | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |
| 16.3.2.2.2      | NR SA FR1 4-step RA type contention based random access test in FR1 for NR standalone for 2 Rx UE     | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |
| 16.3.2.2.3      | NR SA FR1 4-step RA type non-contention based random access test in FR1 for NR standalone for 1 Rx UE | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        | Subtest 2: F001         |
| 16.3.2.2.4      | NR SA FR1 4-step RA type non-contention based random access test in FR1 for NR standalone for 2 Rx UE | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        | Subtest 2: F001         |
| 16.3.2.2.5      | NR SA FR1 2-step RA type contention based random access test in FR1 for NR standalone for 1 Rx UE     | Rel-17  | C187          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and 2-step RACH |                        |        |                         |
| 16.3.2.2.6      | NR SA FR1 2-step RA type contention based random access test in FR1 for NR standalone for 2 Rx UE     | Rel-17  | C188          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and 2-step RACH |                        |        |                         |
| 16.3.2.2.7      | NR SA FR1 2-step RA type non-contention based test in FR1 for NR standalone for 1 RX UE               | Rel-17  | C187          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and 2-step RACH |                        |        |                         |
| 16.3.2.2.8      | NR SA FR1 2-step RA type non-contention based test in FR1 for NR standalone for 2 RX UE               | Rel-17  | C188          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and 2-step RACH |                        |        |                         |
| <b>16.3.2.3</b> | <b>RRC connection release with redirection for RedCap</b>                                             |         |               |                                                         |                        |        |                         |
| 16.3.2.3.1      | NR SA FR1-FR1 RRC connection release with Redirection for 1 Rx UE                                     | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                 |                        |        |                         |

| Clause        | TC Title                                                                                                                    | Release | Applicability |                                                            | Additional Information | Branch | Test Selection Criteria |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------|------------------------|--------|-------------------------|
|               |                                                                                                                             |         | Condition     | Comment                                                    |                        |        |                         |
| 16.3.2.3.2    | NR SA FR1-FR1 RRC connection release with Redirection for 2 Rx UE                                                           | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        |                         |
| 16.3.2.3.3    | NR SA FR1-E-UTRA RRC connection release with Redirection for 1 Rx UE                                                        | Rel-17  | C181          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA         |                        |        |                         |
| 16.3.2.3.4    | NR SA FR1-E-UTRA RRC connection release with Redirection for 2 Rx UE                                                        | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA         |                        |        |                         |
| <b>16.4</b>   | <b>Timing for RedCap</b>                                                                                                    |         |               |                                                            |                        |        |                         |
| <b>16.4.1</b> | <b>UE transmit timing for RedCap</b>                                                                                        |         |               |                                                            |                        |        |                         |
| 16.4.1.1      | NR SA FR1 NR UE Transmit Timing accuracy for 1 Rx UE                                                                        | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        | Subtest 2: F002         |
| 16.4.1.2      | NR SA FR1 NR UE Transmit Timing accuracy for 2 Rx UE                                                                        | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        | Subtest 2: F002         |
| <b>16.4.2</b> | <b>UE timer accuracy for RedCap</b>                                                                                         |         |               |                                                            |                        |        |                         |
| <b>16.4.3</b> | <b>Timing advance for RedCap</b>                                                                                            |         |               |                                                            |                        |        |                         |
| 16.4.3.1      | NR SA FR1 timing advance adjustment accuracy for 1 Rx UE                                                                    | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        |                         |
| 16.4.3.2      | NR SA FR1 timing advance adjustment accuracy for 2 Rx UE                                                                    | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        |                         |
| <b>16.5</b>   | <b>Signalling characteristics for RedCap</b>                                                                                |         |               |                                                            |                        |        |                         |
| <b>16.5.1</b> | <b>Radio Link Monitoring for RedCap</b>                                                                                     |         |               |                                                            |                        |        |                         |
| 16.5.1.1      | NR SA FR1 Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with SSB-based RLM RS in non-DRX mode for 1 Rx UE | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        |                         |
| 16.5.1.2      | NR SA FR1 Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with SSB-based RLM RS in non-DRX mode for 2 Rx UE | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        |                         |
| 16.5.1.3      | NR SA FR1 Radio Link Monitoring In-sync Test for FR1 PCell configured with SSB-based RLM RS in non-DRX mode for 1 Rx UE     | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        |                         |
| 16.5.1.4      | NR SA FR1 Radio Link Monitoring In-sync Test for FR1 PCell configured with SSB-based RLM RS in non-DRX mode for 2 Rx UE     | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                    |                        |        |                         |
| 16.5.1.5      | NR SA FR1 Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with SSB-based RLM RS in DRX mode for 1 Rx UE     | Rel-17  | C188          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle |                        |        |                         |

| Clause    | TC Title                                                                                                                    | Release | Applicability |                                                                              | Additional Information | Branch | Test Selection Criteria |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|           |                                                                                                                             |         | Condition     | Comment                                                                      |                        |        |                         |
| 16.5.1.6  | NR SA FR1 Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with SSB-based RLM RS in DRX mode for 2 Rx UE     | Rel-17  | C190          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                   |                        |        |                         |
| 16.5.1.7  | NR SA FR1 Radio Link Monitoring In-sync Test for FR1 PCell configured with SSB-based RLM RS in DRX mode for 1 Rx UE         | Rel-17  | C188          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                   |                        |        |                         |
| 16.5.1.8  | NR SA FR1 Radio Link Monitoring In-sync Test for FR1 PCell configured with SSB-based RLM RS in DRX mode for 2 Rx UE         | Rel-17  | C190          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                   |                        |        |                         |
| 16.5.1.9  | NR SA FR1 Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with CSI-RS-based RLM in non-DRX mode for 1 Rx UE | Rel-17  | C214          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM                 |                        |        |                         |
| 16.5.1.10 | NR SA FR1 Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with CSI-RS-based RLM in non-DRX mode for 2 Rx UE | Rel-17  | C215          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM                 |                        |        |                         |
| 16.5.1.11 | NR SA FR1 Radio Link Monitoring In-sync Test for FR1 PCell configured with CSI-RS-based RLM in non-DRX mode for 1 Rx UE     | Rel-17  | C214          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM                 |                        |        |                         |
| 16.5.1.12 | NR SA FR1 Radio Link Monitoring In-sync Test for FR1 PCell configured with CSI-RS-based RLM in non-DRX mode for 2 Rx UE     | Rel-17  | C215          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM                 |                        |        |                         |
| 16.5.1.13 | NR SA FR1 Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with CSI-RS-based RLM in DRX mode for 1 Rx UE     | Rel-17  | C216          | 1Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and long DRX cycle |                        |        |                         |
| 16.5.1.14 | NR SA FR1 Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with CSI-RS-based RLM in DRX mode for 2 Rx UE     | Rel-17  | C217          | 2Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and long DRX cycle |                        |        |                         |
| 16.5.1.15 | NR SA FR1 Radio Link Monitoring In-sync Test for FR1 PCell configured with CSI-RS-based RLM in DRX mode for 1 Rx UE         | Rel-17  | C216          | 1Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and long DRX cycle |                        |        |                         |

| Clause          | TC Title                                                                                                                                  | Release | Applicability |                                                                                             | Additional Information | Branch | Test Selection Criteria |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                                                                                           |         | Condition     | Comment                                                                                     |                        |        |                         |
| 16.5.1.16       | NR SA FR1 Radio Link Monitoring In-sync Test for FR1 PCell configured with CSI-RS-based RLM in DRX mode for 2 Rx UE                       | Rel-17  | C217          | 2Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and long DRX cycle                |                        |        |                         |
| <b>16.5.2</b>   | <b>Beam Failure Detection and Link recovery procedures for RedCap</b>                                                                     |         |               |                                                                                             |                        |        |                         |
| 16.5.2.1        | NR SA FR1 Beam Failure Detection and Link Recovery Test for FR1 PCell configured with SSB-based BFD and LR in non-DRX mode for 1 Rx UE    | Rel-17  | C191          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and link recovery                                   |                        |        |                         |
| 16.5.2.2        | NR SA FR1 Beam Failure Detection and Link Recovery Test for FR1 PCell configured with SSB-based BFD and LR in non-DRX mode for 2 Rx UE    | Rel-17  | C192          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and link recovery                                   |                        |        |                         |
| 16.5.2.3        | NR SA FR1 Beam Failure Detection and Link Recovery Test for FR1 PCell configured with SSB-based BFD and LR in DRX mode for 1 Rx UE        | Rel-17  | C272          | 1Rx RedCap UEs supporting 5GS NR SA FR1, SSB-based RLM, long DRX cycle and link recovery    |                        |        |                         |
| 16.5.2.4        | NR SA FR1 Beam Failure Detection and Link Recovery Test for FR1 PCell configured with SSB-based BFD and LR in DRX mode for 2 Rx UE        | Rel-17  | C273          | 2Rx RedCap UEs supporting 5GS NR SA FR1, SSB-based RLM, long DRX cycle and link recovery    |                        |        |                         |
| 16.5.2.5        | NR SA FR1 Beam Failure Detection and Link Recovery Test for FR1 PCell configured with CSI-RS-based BFD and LR in non-DRX mode for 1 Rx UE | Rel-17  | C218          | 1Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and link recovery                 |                        |        |                         |
| 16.5.2.6        | NR SA FR1 Beam Failure Detection and Link Recovery Test for FR1 PCell configured with CSI-RS-based BFD and LR in non-DRX mode for 2 Rx UE | Rel-17  | C219          | 2Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and link recovery                 |                        |        |                         |
| 16.5.2.7        | NR SA FR1 Beam Failure Detection and Link Recovery Test for FR1 PCell configured with CSI-RS-based BFD and LR in DRX mode for 1 Rx UE     | Rel-17  | C220          | 1Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM, long DRX cycle and link recovery |                        |        |                         |
| 16.5.2.8        | NR SA FR1 Beam Failure Detection and Link Recovery Test for FR1 PCell configured with CSI-RS-based BFD and LR in DRX mode for 2 Rx UE     | Rel-17  | C221          | 1Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM, long DRX cycle and link recovery |                        |        |                         |
| <b>16.5.3</b>   | <b>Active BWP switch delay for RedCap</b>                                                                                                 |         |               |                                                                                             |                        |        |                         |
| <b>16.5.3.1</b> | <b>DCI-based and timer-based active BWP switch for RedCap</b>                                                                             |         |               |                                                                                             |                        |        |                         |

| Clause          | TC Title                                                                        | Release | Applicability |                                                                                                                                                            | Additional Information | Branch | Test Selection Criteria |
|-----------------|---------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                                 |         | Condition     | Comment                                                                                                                                                    |                        |        |                         |
| 16.5.3.1.1      | NR SA FR1 DCI-based DL active BWP switch in non-DRX for 1 Rx UE                 | Rel-17  | C274          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and (DCI and timer based active BWP switching delay type1 or type2) and (Support of BWP adaptation upto2 or upto4) |                        |        |                         |
| 16.5.3.1.2      | NR SA FR1 DCI-based DL active BWP switch in non-DRX for 2 Rx UE                 | Rel-17  | C275          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and (DCI and timer based active BWP switching delay type1 or type2) and (Support of BWP adaptation upto2 or upto4) |                        |        |                         |
| <b>16.5.3.2</b> | <b>RRC-based active BWP switch for RedCap</b>                                   |         |               |                                                                                                                                                            |                        |        |                         |
| 16.5.3.2.1      | NR SA FR1 RRC-based DL active BWP switch in non-DRX for 1 Rx UE                 | Rel-17  | C276          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and (Support of BWP adaptation upto2 or upto4)                                                                     |                        |        |                         |
| 16.5.3.2.2      | NR SA FR1 RRC-based DL active BWP switch in non-DRX for 2 Rx UE                 | Rel-17  | C277          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and (Support of BWP adaptation upto2 or upto4)                                                                     |                        |        |                         |
| <b>16.5.4</b>   | <b>UE specific CBW change for RedCap</b>                                        |         |               |                                                                                                                                                            |                        |        |                         |
| 16.5.4.1        | NR SA FR1 UE specific CBW change on PCell in non-DRX for 1 Rx UE                | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                                                                                    |                        |        |                         |
| 16.5.4.2        | NR SA FR1 UE specific CBW change on PCell in non-DRX for 2 Rx UE                | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                                                                                    |                        |        |                         |
| <b>16.6</b>     | <b>Measurement procedure for RedCap</b>                                         |         |               |                                                                                                                                                            |                        |        |                         |
| <b>16.6.1</b>   | <b>Intra-frequency Measurements for RedCap</b>                                  |         |               |                                                                                                                                                            |                        |        |                         |
| 16.6.1.1        | NR SA FR1 Event triggered reporting tests without gap under non-DRX for 1 Rx UE | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                                                                                    |                        |        |                         |
| 16.6.1.2        | NR SA FR1 Event triggered reporting tests without gap under non-DRX for 2 Rx UE | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                                                                                    |                        |        |                         |
| 16.6.1.3        | NR SA FR1 Event triggered reporting tests without gap under DRX for 1 Rx UE     | Rel-17  | C189          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                                                 |                        |        |                         |
| 16.6.1.4        | NR SA FR1 Event triggered reporting tests without gap under DRX for 2 Rx UE     | Rel-17  | C190          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                                                 |                        |        |                         |

| Clause        | TC Title                                                                                                            | Release | Applicability |                                                                                                                           | Additional Information | Branch | Test Selection Criteria |
|---------------|---------------------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|               |                                                                                                                     |         | Condition     | Comment                                                                                                                   |                        |        |                         |
| 16.6.1.5      | NR SA FR1 Event triggered reporting tests with per-UE gaps under non-DRX for 1 Rx UE                                | Rel-17  | C222          | 1Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and BWP operation without bandwidth restriction                 |                        |        |                         |
| 16.6.1.6      | NR SA FR1 Event triggered reporting tests with per-UE gaps under non-DRX for 2 Rx UE                                | Rel-17  | C223          | 2Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM and BWP operation without bandwidth restriction                 |                        |        |                         |
| 16.6.1.7      | NR SA FR1 Event triggered reporting tests with per-UE gaps under DRX for 1 Rx UE                                    | Rel-17  | C193          | 1Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM, BWP operation without bandwidth restriction and long DRX cycle |                        |        |                         |
| 16.6.1.8      | NR SA FR1 Event triggered reporting tests with per-UE gaps under DRX for 2 Rx UE                                    | Rel-17  | C194          | 2Rx RedCap UEs supporting 5GS NR SA FR1, CSI-RS-based RLM, BWP operation without bandwidth restriction and long DRX cycle |                        |        |                         |
| 16.6.1.9      | NR SA FR1 Event triggered reporting tests without gap under non-DRX with SSB index reading for 1 Rx UE              | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                                                   |                        |        |                         |
| 16.6.1.10     | NR SA FR1 Event triggered reporting tests without gap under non-DRX with SSB index reading for 2 Rx UE              | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                                                   |                        |        |                         |
| 16.6.1.11     | NR SA FR1 Event triggered reporting tests with per-UE gaps under non-DRX with SSB index reading for 1 Rx UE         | Rel-17  | C195          | 1Rx RedCap UEs supporting 5GS NR FDD SA FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction          |                        |        |                         |
| 16.6.1.12     | NR SA FR1 Event triggered reporting tests with per-UE gaps under non-DRX with SSB index reading for 2 Rx UE         | Rel-17  | C196          | 2Rx RedCap UEs supporting 5GS NR FDD SA FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction          |                        |        |                         |
| <b>16.6.2</b> | <b>Inter-frequency measurements for RedCap</b>                                                                      |         |               |                                                                                                                           |                        |        |                         |
| 16.6.2.1      | NR SA FR1-FR1 Event triggered reporting tests for FR1 without SSB time index detection when DRX is used for 1 Rx UE | Rel-17  | C189          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                |                        |        |                         |

| Clause    | TC Title                                                                                                                | Release | Applicability |                                                                                                                                | Additional Information | Branch | Test Selection Criteria |
|-----------|-------------------------------------------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|           |                                                                                                                         |         | Condition     | Comment                                                                                                                        |                        |        |                         |
| 16.6.2.2  | NR SA FR1-FR1 Event triggered reporting tests for FR1 without SSB time index detection when DRX is used for 2 Rx UE     | Rel-17  | C190          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     |                        |        |                         |
| 16.6.2.3  | NR SA FR1-FR1 Event triggered reporting tests for FR1 without SSB time index detection when DRX is not used for 1 Rx UE | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                                                        |                        |        |                         |
| 16.6.2.4  | NR SA FR1-FR1 Event triggered reporting tests for FR1 without SSB time index detection when DRX is not used for 2 Rx UE | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                                                        |                        |        |                         |
| 16.6.2.5  | NR SA FR1-FR1 Event triggered reporting tests for FR1 with SSB time index detection when DRX is not used for 1 Rx UE    | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                                                        |                        |        |                         |
| 16.6.2.6  | NR SA FR1-FR1 Event triggered reporting tests for FR1 with SSB time index detection when DRX is not used for 2 Rx UE    | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                                                        |                        |        |                         |
| 16.6.2.7  | NR SA FR1-FR1 Event triggered reporting tests for FR1 with SSB time index detection when DRX is used for 1 Rx UE        | Rel-17  | C189          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     |                        |        |                         |
| 16.6.2.8  | NR SA FR1-FR1 Event triggered reporting tests for FR1 with SSB time index detection when DRX is used for 2 Rx UE        | Rel-17  | C190          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     |                        |        |                         |
| 16.6.2.9  | NR SA FR1-FR1 Event triggered reporting tests with additional mandatory gap pattern for 1 Rx UE                         | Rel-17  | C183a         | 1Rx RedCap UEs supporting 5GS NR SA FR1 and <i>supportedGapPattern-NRonly-r16</i>                                              |                        |        |                         |
| 16.6.2.10 | NR SA FR1-FR1 Event triggered reporting tests with additional mandatory gap pattern for 2 Rx UE                         | Rel-17  | C184a         | 2Rx RedCap UEs supporting 5GS NR SA FR1 and <i>supportedGapPattern-NRonly-r16</i>                                              |                        |        |                         |
| 16.6.2.11 | NR SA FR1-FR1 Event triggered reporting tests for FR1 when DRX is used for 1 Rx UE                                      | Rel-17  | C298          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle and inter-frequency SSB based measurements without measurement gaps |                        |        |                         |

| Clause        | TC Title                                                                           | Release | Applicability |                                                                                                                                | Additional Information | Branch | Test Selection Criteria |
|---------------|------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|               |                                                                                    |         | Condition     | Comment                                                                                                                        |                        |        |                         |
| 16.6.2.12     | NR SA FR1-FR1 Event triggered reporting tests for FR1 when DRX is used for 2 Rx UE | Rel-17  | C299          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle and inter-frequency SSB based measurements without measurement gaps |                        |        |                         |
| <b>16.6.3</b> | <b>Inter-RAT measurements for RedCap</b>                                           |         |               |                                                                                                                                |                        |        |                         |
| 16.6.3.1      | NR - E-UTRA event-triggered reporting in non-DRX for 1 Rx UE                       | Rel-17  | C181          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                                                             |                        |        |                         |
| 16.6.3.2      | NR - E-UTRA event-triggered reporting in non-DRX for 2 Rx UE                       | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                                                             |                        |        |                         |
| 16.6.3.3      | NR - E-UTRA event-triggered reporting in DRX for 1 Rx UE                           | Rel-17  | C318          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA and long DRX cycle                                                          |                        |        |                         |
| 16.6.3.4      | NR - E-UTRA event-triggered reporting in DRX for 2 Rx UE                           | Rel-17  | C319          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA and long DRX cycle                                                          |                        |        |                         |
| <b>16.6.4</b> | <b>L1-RSRP measurement for beam reporting for RedCap</b>                           |         |               |                                                                                                                                |                        |        |                         |
| 16.6.4.1      | NR SA FR1 SSB based L1-RSRP measurement when DRX is not used for 1 Rx UE           | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                                                        |                        |        |                         |
| 16.6.4.2      | NR SA FR1 SSB based L1-RSRP measurement when DRX is not used for 2 Rx UE           | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                                                        |                        |        |                         |
| 16.6.4.3      | NR SA FR1 SSB based L1-RSRP measurement when DRX is used for 1 Rx UE               | Rel-17  | C189          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     |                        |        |                         |
| 16.6.4.4      | NR SA FR1 SSB based L1-RSRP measurement when DRX is used for 2 Rx UE               | Rel-17  | C190          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     |                        |        |                         |
| 16.6.4.5      | NR SA FR1 CSI-RS based L1-RSRP measurement when DRX is not used for 1 Rx UE        | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                                                                        |                        |        |                         |
| 16.6.4.6      | NR SA FR1 CSI-RS based L1-RSRP measurement when DRX is not used for 2 Rx UE        | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                                                                        |                        |        |                         |
| 16.6.4.7      | NR SA FR1 CSI-RS based L1-RSRP measurement when DRX is used for 1 Rx UE            | Rel-17  | C189          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     |                        |        |                         |
| 16.6.4.8      | NR SA FR1 CSI-RS based L1-RSRP measurement when DRX is used for 2 Rx UE            | Rel-17  | C190          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and long DRX cycle                                                                     |                        |        |                         |

| Clause          | TC Title                                                         | Release | Applicability |                                                                                    | Additional Information | Branch | Test Selection Criteria |
|-----------------|------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                  |         | Condition     | Comment                                                                            |                        |        |                         |
| <b>16.6.5</b>   | <b>NR measurements with autonomous gaps for RedCap</b>           |         |               |                                                                                    |                        |        |                         |
| 16.6.5.1        | NR SA FR1 CGI identification of NR neighbour cell for 1 Rx UE    | Rel-17  | C302          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and NR CGI reading using autonomous gap    |                        |        |                         |
| 16.6.5.2        | NR SA FR1 CGI identification of NR neighbour cell for 2 Rx UE    | Rel-17  | C303          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and NR CGI reading using autonomous gap    |                        |        |                         |
| 16.6.5.3        | NR SA FR1 - E-UTRA CGI Identification of E-UTRA cell for 1 Rx UE | Rel-17  | C304          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and EUTRA CGI reading using autonomous gap |                        |        |                         |
| 16.6.5.4        | NR SA FR1 - E-UTRA CGI Identification of E-UTRA cell for 2 Rx UE | Rel-17  | C305          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and EUTRA CGI reading using autonomous gap |                        |        |                         |
| <b>16.7</b>     | <b>Measurement Performance requirements for RedCap</b>           |         |               |                                                                                    |                        |        |                         |
| <b>16.7.1</b>   | <b>SS-RSRP</b>                                                   |         |               |                                                                                    |                        |        |                         |
| <b>16.7.1.1</b> | <b>Intra-frequency measurements for RedCap for 1 Rx UE</b>       |         |               |                                                                                    |                        |        |                         |
| 16.7.1.1.1      | NR SA FR1 SS-RSRP absolute measurement accuracy for 1 Rx UE      | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |
| 16.7.1.1.2      | NR SA FR1 SS-RSRP relative measurement accuracy for 1 Rx UE      | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |
| <b>16.7.1.2</b> | <b>Intra-frequency measurements for RedCap for 2 Rx UE</b>       |         |               |                                                                                    |                        |        |                         |
| 16.7.1.2.1      | NR SA FR1 SS-RSRP absolute measurement accuracy for 2 Rx UE      | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |
| 16.7.1.2.2      | NR SA FR1 SS-RSRP relative measurement accuracy for 2 Rx UE      | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |
| 16.7.1.3.1      | NR SA FR1-FR1 SS-RSRP absolute measurement accuracy for 1 Rx UE  | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |
| 16.7.1.3.2      | NR SA FR1-FR1 SS-RSRP relative measurement accuracy for 1 Rx UE  | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |
| 16.7.1.4.1      | NR SA FR1-FR1 SS-RSRP absolute measurement accuracy for 2 Rx UE  | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |
| 16.7.1.4.2      | NR SA FR1-FR1 SS-RSRP relative measurement accuracy for 2 Rx UE  | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |
| <b>16.7.2</b>   | <b>SS-RSRQ for RedCap</b>                                        |         |               |                                                                                    |                        |        |                         |
| 16.7.2.1        | NR SA FR1 SS-RSRQ absolute measurement accuracy for 1 Rx UE      | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                                            |                        |        |                         |

| Clause          | TC Title                                                              | Release | Applicability |                                                                 | Additional Information | Branch | Test Selection Criteria |
|-----------------|-----------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                       |         | Condition     | Comment                                                         |                        |        |                         |
| 16.7.2.2        | NR SA FR1 SS-RSRQ absolute measurement accuracy for 2 Rx UE           | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                         |                        |        |                         |
| <b>16.7.2.3</b> | <b>Inter-frequency measurement accuracy for 1 Rx UE</b>               |         |               |                                                                 |                        |        |                         |
| 16.7.2.3.1      | NR SA FR1-FR1 SS-RSRQ absolute measurement accuracy for 1 Rx UE       | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                         |                        |        |                         |
| 16.7.2.3.2      | NR SA FR1-FR1 SS_RSRQ relative measurement accuracy for 1 Rx UE       | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                         |                        |        |                         |
| <b>16.7.2.4</b> | <b>Inter-frequency measurement accuracy for 2 Rx UE</b>               |         |               |                                                                 |                        |        |                         |
| 16.7.2.4.1      | NR SA FR1-FR1 SS-RSRQ absolute measurement accuracy for 2 Rx UE       | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                         |                        |        |                         |
| 16.7.2.4.2      | NR SA FR1-FR1 SS-RSRQ relative measurement accuracy for 2 Rx UE       | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1                         |                        |        |                         |
| <b>16.7.3</b>   | <b>SS-SINR for RedCap</b>                                             |         |               |                                                                 |                        |        |                         |
| 16.7.3.1        | NR SA FR1 SS-SINR absolute measurement accuracy for 1 Rx UE           | Rel-17  | C306          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and SS-SINR measurement |                        |        |                         |
| 16.7.3.2        | NR SA FR1 SS-SINR absolute measurement accuracy for 2 Rx UE           | Rel-17  | C307          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and SS-SINR measurement |                        |        |                         |
| <b>16.7.3.3</b> | <b>Inter-frequency measurement accuracy for 1 Rx UE</b>               |         |               |                                                                 |                        |        |                         |
| 16.7.3.3.1      | NR SA FR1-FR1 SS-SINR absolute measurement accuracy for 1 Rx UE       | Rel-17  | C306          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and SS-SINR measurement |                        |        |                         |
| 16.7.3.3.2      | NR SA FR1-FR1 SS-SINR relative measurement accuracy for 1 Rx UE       | Rel-17  | C306          | 1Rx RedCap UEs supporting 5GS NR SA FR1 and SS-SINR measurement |                        |        |                         |
| <b>16.7.3.4</b> | <b>Inter-frequency measurement accuracy for 2 Rx UE</b>               |         |               |                                                                 |                        |        |                         |
| 16.7.3.4.1      | NR SA FR1-FR1 SS-SINR absolute measurement accuracy for 2 Rx UE       | Rel-17  | C307          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and SS-SINR measurement |                        |        |                         |
| 16.7.3.4.2      | NR SA FR1-FR1 SS-SINR relative measurement accuracy for 2 Rx UE       | Rel-17  | C307          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and SS-SINR measurement |                        |        |                         |
| <b>16.7.4</b>   | <b>L1-RSRP measurement for beam reporting for RedCap</b>              |         |               |                                                                 |                        |        |                         |
| 16.7.4.1.1      | NR SA FR1 SSB based L1-RSRP absolute measurement accuracy for 1 Rx UE | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1                         |                        |        |                         |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                    | Release | Applicability |                                         | Additional Information | Branch | Test Selection Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------|---------------|-----------------------------------------|------------------------|--------|-------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                             |         | Condition     | Comment                                 |                        |        |                         |
| 16.7.4.1.2                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1 SSB based L1-RSRP relative measurement accuracy for 1 Rx UE       | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| 16.7.4.2.1                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1 SSB based L1-RSRP absolute measurement accuracy for 2 Rx UE       | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| 16.7.4.2.2                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1 SSB based L1-RSRP relative measurement accuracy for 2 Rx UE       | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| 16.7.4.3.1                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1 CSI-RS based L1-RSRP absolute measurement accuracy for 1 Rx UE    | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| 16.7.4.3.2                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1 CSI-RS based L1-RSRP relative measurement on accuracy for 1 Rx UE | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| 16.7.4.4.1                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1 CSI-RS based L1-RSRP absolute measurement accuracy for 2 Rx UE    | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| 16.7.4.4.2                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1 CSI-RS based L1-RSRP relative measurement accuracy for 2 Rx UE    | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| <b>16.7.5</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>E-UTRAN RSRP for RedCap</b>                                              |         |               |                                         |                        |        |                         |
| 16.7.5.1                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 - E-UTRA RSRP absolute measurement accuracy for 1 Rx UE           | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| 16.7.5.2                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 - E-UTRA RSRP absolute measurement accuracy 2 Rx UE               | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| <b>16.7.6</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>E-UTRAN RSRQ for RedCap</b>                                              |         |               |                                         |                        |        |                         |
| 16.7.6.1                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 - E-UTRA RSRQ absolute measurement accuracy 1 Rx UE               | Rel-17  | C183          | 1Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| 16.7.6.2                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 - E-UTRA RSRQ absolute measurement accuracy for 2 Rx UE           | Rel-17  | C184          | 2Rx RedCap UEs supporting 5GS NR SA FR1 |                        |        |                         |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                             |         |               |                                         |                        |        |                         |
| NOTE 2: Test X refers to the corresponding Sub-Test as defined in TS 38.533 [5].                                                                                                                                                                                                                                                                                                         |                                                                             |         |               |                                         |                        |        |                         |

Table 4.2-8: Applicability of RRM NR SA FR2 conformance test cases for RedCap, ref. TS 38.533 [5]

| Clause          | TC Title                                                                                                       | Release | Applicability |                                                                                                                     | Additional Information | Branch | Test Selection Criteria |
|-----------------|----------------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                                                                |         | Condition     | Comment                                                                                                             |                        |        |                         |
| <b>17.1</b>     | <b>RRC_IDLE state mobility for RedCap</b>                                                                      |         |               |                                                                                                                     |                        |        |                         |
| <b>17.1.1</b>   | <b>NR cell re-selection for RedCap</b>                                                                         |         |               |                                                                                                                     |                        |        |                         |
| 17.1.1.1        | NR SA FR2 Cell reselection for 2 Rx UE                                                                         | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 |                        |        |                         |
| 17.1.1.2        | NR SA FR2-FR2 Cell reselection for 2 Rx UE                                                                     | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 |                        |        |                         |
| 17.1.1.3        | NR SA FR2 Cell reselection for UE fulfilling stationary relaxed measurement criterion for 2 Rx UE              | Rel-17  | C239          | RedCap UEs supporting 5GS NR SA FR2 and Rel-17 relaxed RRM measurements of neighbour cells in RRC_IDLE/RRC_INACTIVE |                        |        |                         |
| 17.1.1.4        | NR SA FR2-FR2 Cell reselection for UE fulfilling stationary mobility relaxed measurement criterion for 2 Rx UE | Rel-17  | C239          | RedCap UEs supporting 5GS NR SA FR2 and Rel-17 relaxed RRM measurements of neighbour cells in RRC_IDLE/RRC_INACTIVE |                        |        |                         |
| <b>17.2</b>     | <b>RRC_INACTIVE state mobility for RedCap</b>                                                                  |         |               |                                                                                                                     |                        |        |                         |
| <b>17.2.1</b>   | <b>Configured Grant based Small Data Transmissions for RedCap</b>                                              |         |               |                                                                                                                     |                        |        |                         |
| 17.2.1.1        | NR SA FR2 TA validation for CG-SDT for 2 Rx UE                                                                 | Rel-17  | C308          | RedCap UEs supporting 5GS NR SA FR2, CG-based small data transmission and long DRX cycle                            | NOTE 1                 |        |                         |
| <b>17.3</b>     | <b>RRC_CONNECTED state mobility for RedCap</b>                                                                 |         |               |                                                                                                                     |                        |        |                         |
| <b>17.3.1</b>   | <b>Handover for RedCap</b>                                                                                     |         |               |                                                                                                                     |                        |        |                         |
| 17.3.1.1        | NR SA FR2 handover with unknown target cell for 2 Rx UE                                                        | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 |                        |        |                         |
| 17.3.1.2        | NR SA FR2-FR2 handover with unknown target cell for 2 Rx UE                                                    | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 |                        |        |                         |
| <b>17.3.2</b>   | <b>RRC connection mobility control for RedCap</b>                                                              |         |               |                                                                                                                     |                        |        |                         |
| <b>17.3.2.1</b> | <b>RRC re-establishment for RedCap</b>                                                                         |         |               |                                                                                                                     |                        |        |                         |
| 17.3.2.1.1      | NR SA FR2 Intra-frequency RRC Re-establishment in FR2                                                          | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 |                        |        |                         |
| 17.3.2.1.2      | NR SA FR2-FR2 Inter-frequency RRC Re-establishment in FR2                                                      | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 |                        |        |                         |
| 17.3.2.1.3      | NR SA FR2 Intra-frequency RRC Re-establishment in FR2 without serving cell timing                              | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 |                        |        |                         |
| <b>17.3.2.2</b> | <b>Random Access for RedCap</b>                                                                                |         |               |                                                                                                                     |                        |        |                         |
| 17.3.2.2.1      | NR SA FR2 4-step contention based random access for 2 Rx UE                                                    | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 | NOTE 1                 |        |                         |
| 17.3.2.2.2      | NR SA FR2 4-step non-contention based random access for 2 Rx UE                                                | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                 | NOTE 1                 |        | Subtest 2: F001         |
| 17.3.2.2.3      | NR SA FR2 2-step contention based random access for 2 Rx UE                                                    | Rel-17  | C225          | RedCap UEs supporting 5GS NR SA FR2 and 2-step RACH                                                                 | NOTE 1                 |        |                         |

| Clause          | TC Title                                                                                                                    | Release | Applicability |                                                                             | Additional Information | Branch | Test Selection Criteria |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                                                                             |         | Condition     | Comment                                                                     |                        |        |                         |
| 17.3.2.2.4      | NR SA FR2 2-step non-contention based random access for 2 Rx UE                                                             | Rel-17  | C225          | RedCap UEs supporting 5GS NR SA FR2 and 2-step RACH                         | NOTE 1                 |        |                         |
| <b>17.3.2.3</b> | <b>SA: RRC Connection Release with Redirection for RedCap</b>                                                               |         |               |                                                                             |                        |        |                         |
| 17.3.2.3.1      | NR SA FR2-FR2 RRC connection release with redirection for 2 Rx UE                                                           | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                         |                        |        |                         |
| <b>17.4</b>     | <b>Timing for RedCap</b>                                                                                                    |         |               |                                                                             |                        |        |                         |
| <b>17.4.1</b>   | <b>UE transmit timing for RedCap</b>                                                                                        |         |               |                                                                             |                        |        |                         |
| 17.4.1.1        | NR SA FR2 NR UE Transmit Timing accuracy for 2 Rx UE                                                                        | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                         |                        |        |                         |
| <b>17.4.2</b>   | <b>UE timer accuracy for RedCap</b>                                                                                         |         |               |                                                                             |                        |        |                         |
| <b>17.4.3</b>   | <b>Timing advance for RedCap</b>                                                                                            |         |               |                                                                             |                        |        |                         |
| 17.4.3.1        | NR SA FR2 timing advance adjustment accuracy for 2 Rx UE                                                                    | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                         |                        |        |                         |
| <b>17.5</b>     | <b>Signalling characteristics for RedCap</b>                                                                                |         |               |                                                                             |                        |        |                         |
| <b>17.5.1</b>   | <b>Radio Link Monitoring for RedCap</b>                                                                                     |         |               |                                                                             |                        |        |                         |
| 17.5.1.1        | NR SA FR2 Radio Link Monitoring Out-of-sync Test for FR2 PCell configured with SSB-based RLM RS in non-DRX mode for 2 Rx UE | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                         |                        |        |                         |
| 17.5.1.2        | NR SA FR2 Radio Link Monitoring In-sync Test for FR2 PCell configured with SSB-based RLM RS in non-DRX mode for 2 Rx UE     | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                         |                        |        |                         |
| 17.5.1.3        | NR SA FR2 Radio Link Monitoring Out-of-sync Test for FR2 PCell configured with SSB-based RLM RS in DRX mode for 2 Rx UE     | Rel-17  | C198          | RedCap UEs supporting 5GS NR SA FR2 and long DRX cycle                      |                        |        |                         |
| 17.5.1.4        | NR SA FR2 Radio Link Monitoring In-sync Test for FR2 PCell configured with SSB-based RLM RS in DRX mode for 2 Rx UE         | Rel-17  | C198          | RedCap UEs supporting 5GS NR SA FR2 and long DRX cycle                      |                        |        |                         |
| 17.5.1.5        | NR SA FR2 Radio Link Monitoring Out-of-sync Test for FR2 PCell configured with CSI-RS-based RLM in non-DRX mode for 2 Rx UE | Rel-17  | C309          | RedCap UEs supporting 5GS NR SA FR2 and CSI-RS-based RLM                    |                        |        |                         |
| 17.5.1.6        | NR SA FR2 Radio Link Monitoring In-sync Test for FR2 PCell configured with CSI-RS-based RLM in non-DRX mode for 2 Rx UE     | Rel-17  | C309          | RedCap UEs supporting 5GS NR SA FR2 and CSI-RS-based RLM                    |                        |        |                         |
| 17.5.1.7        | NR SA FR2 Radio Link Monitoring Out-of-sync Test for FR2 PCell configured with CSI-RS-based RLM in DRX mode for 2 Rx UE     | Rel-17  | C310          | RedCap UEs supporting 5GS NR SA FR2 and CSI-RS-based RLM and long DRX cycle |                        |        |                         |
| 17.5.1.8        | NR SA FR2 Radio Link Monitoring In-sync Test for FR2 PCell configured with CSI-RS-based RLM in DRX mode for 2 Rx UE         | Rel-17  | C310          | RedCap UEs supporting 5GS NR SA FR2 and CSI-RS-based RLM and long DRX cycle |                        |        |                         |
| 17.5.1.9        | NR SA FR2 UE Radio Link Monitoring Scheduling Restrictions on FR2 for 2 Rx UE                                               | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                         |                        |        |                         |

| Clause          | TC Title                                                                                                                                                                     | Release | Applicability |                                                                                                                                                        | Additional Information | Branch | Test Selection Criteria |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                                                                                                                              |         | Condition     | Comment                                                                                                                                                |                        |        |                         |
| <b>17.5.2</b>   | <b>Beam Failure Detection and Link recovery procedures for RedCap</b>                                                                                                        |         |               |                                                                                                                                                        |                        |        |                         |
| 17.5.2.1        | NR SA FR2 Beam Failure Detection and Link Recovery Test for FR2 PCell configured with SSB-based BFD and LR in non-DRX mode for 2 Rx UE                                       | Rel-17  | C226          | RedCap UEs supporting 5GS NR SA FR2 and SSB based link recovery                                                                                        |                        |        |                         |
| 17.5.2.2        | NR SA FR2 Beam Failure Detection and Link Recovery Test for FR2 PCell configured with SSB-based BFD and LR in DRX mode for 2 Rx UE                                           | Rel-17  | C226a         | RedCap UEs supporting 5GS NR SA FR2, SSB based link recovery and long DRX cycle                                                                        |                        |        |                         |
| 17.5.2.3        | NR SA FR2 Beam Failure Detection and Link Recovery Test for FR2 PCell configured with CSI-RS-based BFD and LR in non-DRX mode for 2 Rx UE                                    | Rel-17  | C227          | RedCap UEs supporting 5GS NR SA FR2, CSI-RS based RLM and link recovery                                                                                |                        |        |                         |
| 17.5.2.4        | NR SA FR2 Beam Failure Detection and Link Recovery Test for FR2 PCell configured with CSI-RS-based BFD and LR in DRX mode for 2 Rx UE                                        | Rel-17  | C228          | RedCap UEs supporting 5GS NR SA FR2, long DRX cycle, CSI-RS based RLM and link recovery                                                                |                        |        |                         |
| 17.5.2.5        | NR SA FR2 Scheduling availability restriction during Beam Failure Detection and Link Recovery for FR2 PCell configured with SSB-based BFD and LR in non-DRX mode for 2 Rx UE | Rel-17  | C226          | RedCap UEs supporting 5GS NR SA FR2 and SSB based link recovery                                                                                        |                        |        |                         |
| <b>17.5.3</b>   | <b>Active BWP switch for RedCap</b>                                                                                                                                          |         |               |                                                                                                                                                        |                        |        |                         |
| <b>17.5.3.1</b> | <b>DCI-based and time-based active BWP switch for RedCap</b>                                                                                                                 |         |               |                                                                                                                                                        |                        |        |                         |
| 17.5.3.1.1      | NR SA FR2 DCI-based and Timer-based DL active BWP switch for 2 Rx UE                                                                                                         | Rel-17  | C315          | RedCap UEs supporting 5GS NR SA FR2 and (DCI and timer based active BWP switching delay type1 or type2) and (Support of BWP adaptation upto2 or upto4) |                        |        |                         |
| <b>17.5.3.2</b> | <b>RRC-based active BWP switch for RedCap</b>                                                                                                                                |         |               |                                                                                                                                                        |                        |        |                         |
| 17.5.3.2.1      | NR SA FR2 RRC-based DL active BWP switch for 2 Rx UE                                                                                                                         | Rel-17  | C316          | RedCap UEs supporting 5GS NR SA FR2 and (Support of BWP adaptation upto2 or upto4)                                                                     |                        |        |                         |
| <b>17.5.4</b>   | <b>Active TCI state switch delay for RedCap</b>                                                                                                                              |         |               |                                                                                                                                                        |                        |        |                         |
| <b>17.5.4.1</b> | <b>MAC-CE based active TCI state switch for RedCap</b>                                                                                                                       |         |               |                                                                                                                                                        |                        |        |                         |

| Clause          | TC Title                                                                               | Release | Applicability |                                                                                                                                                                                         | Additional Information | Branch | Test Selection Criteria |
|-----------------|----------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|-------------------------|
|                 |                                                                                        |         | Condition     | Comment                                                                                                                                                                                 |                        |        |                         |
| 17.5.4.1.1      | NR SA FR2 MAC-CE based active TCI state switch for a known TCI state for 2 Rx UE       | Rel-17  | C311          | RedCap UEs supporting 5GS NR SA FR2, maximum number of active TCI states per BWP greater than 1, and maximum number of simultaneously trackable TRS resource sets per CC greater than 1 |                        |        |                         |
| <b>17.5.4.2</b> | <b>RRC based active TCI state switch for RedCap</b>                                    |         |               |                                                                                                                                                                                         |                        |        |                         |
| 17.5.4.2.1      | NR SA FR2 RRC-CE based active TCI state switch for a known TCI state for 2 Rx UE       | Rel-17  | C311          | RedCap UEs supporting 5GS NR SA FR2, maximum number of active TCI states per BWP greater than 1, and maximum number of simultaneously trackable TRS resource sets per CC greater than 1 |                        |        |                         |
| <b>17.5.5</b>   | <b>Uplink spatial relation switch delay for RedCap</b>                                 |         |               |                                                                                                                                                                                         |                        |        |                         |
| <b>17.5.5.1</b> | <b>MAC-CE based Spatial Relation switch for RedCap</b>                                 |         |               |                                                                                                                                                                                         |                        |        |                         |
| 17.5.5.1.1      | NR SA FR2 MAC-CE based spatial relation switch associated with known DL-RS for 2 Rx UE | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                                                                                     |                        |        |                         |
| <b>17.5.5.2</b> | <b>RRC based spatial relation switch for RedCap</b>                                    |         |               |                                                                                                                                                                                         |                        |        |                         |
| 17.5.5.2.1      | NR SA FR2 RRC-based spatial relation switch associated with a known DL-RS for 2 Rx UE  | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                                                                                     |                        |        |                         |
| <b>17.5.6</b>   | <b>UE specific CBW change for RedCap</b>                                               |         |               |                                                                                                                                                                                         |                        |        |                         |
| 17.5.6.1        | NR SA FR2 UE specific CBW change on PCell for 2 Rx UE                                  | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                                                                                     | NOTE 1                 |        |                         |
| <b>17.6</b>     | <b>Measurement procedure for RedCap</b>                                                |         |               |                                                                                                                                                                                         |                        |        |                         |
| <b>17.6.1</b>   | <b>Intra-frequency Measurements for RedCap</b>                                         |         |               |                                                                                                                                                                                         |                        |        |                         |
| 17.6.1.1        | NR SA FR2 event triggered reporting without gap in non-DRX for 2 Rx UE                 | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                                                                                     |                        |        |                         |
| 17.6.1.2        | NR SA FR2 event triggered reporting without gap in DRX for 2 Rx UE                     | Rel-17  | C198          | RedCap UEs supporting 5GS NR SA FR2 and long DRX cycle                                                                                                                                  |                        |        |                         |
| 17.6.1.3        | NR SA FR2 event triggered reporting with gaps in non-DRX for 2 Rx UE                   | Rel-17  | C238          | RedCap UEs supporting 5GS NR SA FR2, CSI-RS-based RLM and BWP operation without bandwidth restriction                                                                                   |                        |        |                         |

| Clause        | TC Title                                                                                     | Release | Applicability |                                                                                                                       | Additional Information | Branch | Test Selection Criteria |
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|               |                                                                                              |         | Condition     | Comment                                                                                                               |                        |        |                         |
| 17.6.1.4      | NR SA FR2 event triggered reporting with gaps in DRX for 2 Rx UE                             | Rel-17  | C229          | RedCap UEs supporting 5GS NR SA FR2, long DRX cycle, CSI-RS-based RLM and BWP operation without bandwidth restriction |                        |        |                         |
| <b>17.6.2</b> | <b>Inter-frequency Measurements for RedCap</b>                                               |         |               |                                                                                                                       |                        |        |                         |
| 17.6.2.1      | NR SA FR2-FR2 event triggered reporting in non-DRX for 2 Rx UE                               | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                   |                        |        |                         |
| 17.6.2.2      | NR SA FR2-FR2 event triggered reporting in DRX for 2 Rx UE                                   | Rel-17  | C198          | RedCap UEs supporting 5GS NR SA FR2 and long DRX cycle                                                                |                        |        |                         |
| 17.6.2.3      | NR SA FR2-FR2 event triggered reporting with SSB time index detection in non-DRX for 2 Rx UE | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                   |                        |        |                         |
| 17.6.2.4      | NR SA FR2-FR2 event triggered reporting with SSB time index detection in DRX for 2 Rx UE     | Rel-17  | C198          | RedCap UEs supporting 5GS NR SA FR2 and long DRX cycle                                                                |                        |        |                         |
| <b>17.6.3</b> | <b>L1-RSRP measurement for beam reporting for RedCap</b>                                     |         |               |                                                                                                                       |                        |        |                         |
| 17.6.3.1      | NR SA FR2 SSB based L1-RSRP measurement in non-DRX for 2 Rx UE                               | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                   |                        |        |                         |
| 17.6.3.2      | NR SA FR2 SSB based L1-RSRP measurement in DRX for 2 Rx UE                                   | Rel-17  | C198          | RedCap UEs supporting 5GS NR SA FR2 and long DRX cycle                                                                |                        |        |                         |
| 17.6.3.3      | NR SA FR2 CSI-RS based L1-RSRP measurement in non-DRX for 2 Rx UE                            | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                   |                        |        |                         |
| 17.6.3.4      | NR SA FR2 CSI-RS based L1-RSRP measurement in DRX for 2 Rx UE                                | Rel-17  | C198          | RedCap UEs supporting 5GS NR SA FR2 and long DRX cycle                                                                |                        |        |                         |
| <b>17.6.4</b> | <b>NR Measurements with autonomous gaps for RedCap</b>                                       |         |               |                                                                                                                       |                        |        |                         |
| 17.6.4.1      | NR SA FR2-FR2 entificCGI identification of NR neighbour cell for 2 Rx UE                     | Rel-17  | C312          | RedCap UEs supporting 5GS NR SA FR2 and NR CGI reading using autonomous gap                                           | NOTE 1                 |        |                         |
| <b>17.7</b>   | <b>Measurement performance requirements for RedCap</b>                                       |         |               |                                                                                                                       |                        |        |                         |
| <b>17.7.1</b> | <b>SS-RSRP for RedCap</b>                                                                    |         |               |                                                                                                                       |                        |        |                         |
| 17.7.1.1      | NR SA FR2 SS-RSRP measurement accuracy for 2 Rx UE                                           | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                   |                        |        |                         |
| 17.7.1.2      | NR SA FR2-FR2 SS-RSRP measurement accuracy for 2 Rx UE                                       | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                   |                        |        |                         |
| <b>17.7.2</b> | <b>SS-RSRQ for RedCap</b>                                                                    |         |               |                                                                                                                       |                        |        |                         |
| 17.7.2.1      | NR SA FR2 SS-RSRQ measurement accuracy for 2 Rx UE                                           | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                   |                        |        |                         |
| 17.7.2.2      | NR SA FR2-FR2 SS-RSRQ measurement accuracy for 2 Rx UE for 2 Rx UE                           | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                                                                                   |                        |        |                         |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                        | Release | Applicability |                                                             | Additional Information | Branch | Test Selection Criteria |
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|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 |         | Condition     | Comment                                                     |                        |        |                         |
| <b>17.7.3</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>L1-RSRP measurement for beam reporting for RedCap</b>        |         |               |                                                             |                        |        |                         |
| 17.7.3.1                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR2 SSB based L1-RSRP measurement accuracy                | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                         |                        |        |                         |
| 17.7.3.2                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR2 CSI-RS based L1-RSRP measurement accuracy for 2 Rx UE | Rel-17  | C197          | RedCap UEs supporting 5GS NR SA FR2                         |                        |        |                         |
| <b>17.7.4</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>SS-SINR for RedCap</b>                                       |         |               |                                                             |                        |        |                         |
| 17.7.4.1                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR2 SS-SINR measurement accuracy for 2 Rx UE              | Rel-17  | C317          | RedCap UEs supporting 5GS NR SA FR2 and SS-SINR measurement |                        |        |                         |
| 17.7.4.2                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR2-FR2 SS-SINR measurement accuracy for 2 Rx UE          | Rel-17  | C317          | RedCap UEs supporting 5GS NR SA FR2 and SS-SINR measurement |                        |        |                         |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                 |         |               |                                                             |                        |        |                         |

Table 4.2-9: Applicability of E-UTRA – NR Inter-RAT conformance test cases for RedCap, ref. TS 38.533 [5]

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                                  | Release | Applicability |                                                                                                 | Additional Information | Branch | Subtest Selection Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                           |         | Condition     | Comment                                                                                         |                        |        |                            |
| <b>18.1</b>                                                                                                                                                                                                                                                                                                                                                                              | <b>RRC_IDLE state mobility for RedCap</b>                                                 |         |               |                                                                                                 |                        |        |                            |
| <b>18.1.1</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>Inter-RAT cell re-selection for RedCap</b>                                             |         |               |                                                                                                 |                        |        |                            |
| 18.1.1.1                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR1 E-UTRA cell re-selection to higher priority NR target Cell for 2 Rx UE | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                              |                        |        |                            |
| <b>18.2</b>                                                                                                                                                                                                                                                                                                                                                                              | <b>RRC_CONNECTED state mobility for RedCap</b>                                            |         |               |                                                                                                 |                        |        |                            |
| <b>18.2.1</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>Inter-RAT cell handover for RedCap</b>                                                 |         |               |                                                                                                 |                        |        |                            |
| 18.2.1.1                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR1 handover for 2 Rx UE                                                   | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                              |                        |        |                            |
| <b>18.2.2</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>RRC connection release with redirection for RedCap</b>                                 |         |               |                                                                                                 |                        |        |                            |
| 18.2.2.1                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR1 RRC connection release with redirection for 2 Rx UE                    | Rel-17  | C182          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA                                              |                        |        |                            |
| <b>18.3</b>                                                                                                                                                                                                                                                                                                                                                                              | <b>Measurement procedure for RedCap</b>                                                   |         |               |                                                                                                 |                        |        |                            |
| <b>18.3.1</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>E-UTRA - NR Measurements for RedCap</b>                                                |         |               |                                                                                                 |                        |        |                            |
| 18.3.1.1                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR1 event triggered reporting without SSB time index detection in non-DRX  | Rel-17  | C230          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA but don't support per-FR gap                 |                        |        |                            |
| 18.3.1.2                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR1 event triggered reporting without SSB time index detection in DRX      | Rel-17  | C232          | 2Rx RedCap UEs supporting 5GS NR SA FR1, E-UTRA and long DRX cycle but don't support per-FR gap |                        |        |                            |
| 18.3.1.3                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR1 event triggered reporting with SSB time index detection in non-DRX     | Rel-17  | C230          | 2Rx RedCap UEs supporting 5GS NR SA FR1 and E-UTRA but don't support per-FR gap                 |                        |        |                            |
| 18.3.1.4                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR1 event triggered reporting with SSB time index detection in DRX         | Rel-17  | C232          | 2Rx RedCap UEs supporting 5GS NR SA FR1, E-UTRA and long DRX cycle but don't support per-FR gap |                        |        |                            |
| 18.3.1.5                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR2 event triggered reporting without SSB time index detection in non-DRX  | Rel-17  | N/A           | Not recommended due to E-UTRA – FR2 testability issue                                           | NOTE 1                 |        |                            |
| 18.3.1.6                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR2 event triggered reporting without SSB time index detection in DRX      | Rel-17  | N/A           | Not recommended due to E-UTRA – FR2 testability issue                                           | NOTE 1                 |        |                            |
| 18.3.1.7                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR2 event triggered reporting with SSB time index detection in non-DRX     | Rel-17  | N/A           | Not recommended due to E-UTRA – FR2 testability issue                                           | NOTE 1                 |        |                            |
| 18.3.1.8                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR SA FR2 event triggered reporting with SSB time index detection in DRX         | Rel-17  | N/A           | Not recommended due to E-UTRA – FR2 testability issue                                           | NOTE 1                 |        |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                                           |         |               |                                                                                                 |                        |        |                            |

Table 4.2-10: Applicability of NR-U EN-DC FR1 conformance test cases, ref. TS 38.533 [5]

| Clause          | TC Title                                                                              | Release | Applicability |                                                                                                                                                                   | Additional Information                                             | Branch     | Subtest Selection Criteria |
|-----------------|---------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------|----------------------------|
|                 |                                                                                       |         | Condition     | Comment                                                                                                                                                           |                                                                    |            |                            |
| <b>10.1</b>     | <b>RRC_CONNECTED state mobility</b>                                                   |         |               |                                                                                                                                                                   |                                                                    |            |                            |
| <b>10.1.1</b>   | <b>RRC connection mobility control</b>                                                |         |               |                                                                                                                                                                   |                                                                    |            |                            |
| <b>10.1.1.1</b> | <b>Random Access</b>                                                                  |         |               |                                                                                                                                                                   |                                                                    |            |                            |
| 10.1.1.1.1      | EN-DC FR1 4-step RA type contention-based random access for NR PSCell with CCA        | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 11.2.2.2.1 has been executed. | 2Rx<br>4Rx |                            |
| 10.1.1.1.2      | EN-DC FR1 4-step RA type non-contention based random access for NR PSCell with CCA    | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 11.2.2.2.2 has been executed. | 2Rx<br>4Rx |                            |
| 10.1.1.1.3      | EN-DC FR1 2-step RA type contention-based random access for NR PSCell with CCA        | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 11.2.2.2.3 has been executed. | 2Rx<br>4Rx |                            |
| 10.1.1.1.4      | EN-DC FR1 2-step RA type non-contention based random access for NR PSCell with CCA    | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 11.2.2.2.4 has been executed. | 2Rx<br>4Rx |                            |
| 10.1.2          | EN-DC FR1 Handover with PSCell from EN-DC to EN-DC with known target PSCell using CCA | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access |                                                                    | 2Rx<br>4Rx |                            |
| <b>10.2</b>     | <b>Timing</b>                                                                         |         |               |                                                                                                                                                                   |                                                                    |            |                            |
| <b>10.2.1</b>   | <b>UE transmit timing</b>                                                             |         |               |                                                                                                                                                                   |                                                                    |            |                            |
| 10.2.1.1        | EN-DC FR1 UE Transmit Timing Test with PSCell under DL CCA                            | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 11.3.1.1 has been executed.   | 2Rx<br>4Rx |                            |
| <b>10.2.2</b>   | <b>UE timing advance</b>                                                              |         |               |                                                                                                                                                                   |                                                                    |            |                            |

| Clause        | TC Title                                                                                                                            | Release | Applicability |                                                                                                                                                                               | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                                                     |         | Condition     | Comment                                                                                                                                                                       |                                                                  |            |                            |
| 10.2.2.1      | EN-DC FR1 UE Timing Advance Adjustment Accuracy with PSCell under DL CCA                                                            | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access             | Test execution not necessary if test 11.3.2.1 has been executed. | 2Rx<br>4Rx |                            |
| <b>10.3</b>   | <b>Signalling characteristics</b>                                                                                                   |         |               |                                                                                                                                                                               |                                                                  |            |                            |
| <b>10.3.1</b> | <b>Radio link monitoring</b>                                                                                                        |         |               |                                                                                                                                                                               |                                                                  |            |                            |
| 10.3.1.2      | EN-DC FR1 Radio link monitoring out-of-sync test for PSCell under CCA configured with SSB-based RLM RS in non-DRX mode              | Rel-16  | C206          | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL and RLM) in dynamic channel access or in semi-static channel access     | Test execution not necessary if test 11.4.1.2 has been executed. | 2Rx<br>4Rx |                            |
| 10.3.1.3      | EN-DC FR1 Radio link monitoring in-sync test for PSCell under CCA configured with SSB-based RLM RS in non-DRX mode                  | Rel-16  | C206          | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL and RLM) in dynamic channel access or in semi-static channel access     | Test execution not necessary if test 11.4.1.3 has been executed. | 2Rx<br>4Rx |                            |
| <b>10.3.2</b> | <b>Void</b>                                                                                                                         |         |               |                                                                                                                                                                               |                                                                  |            |                            |
| <b>10.3.3</b> | <b>SCell activation and deactivation delay</b>                                                                                      |         |               |                                                                                                                                                                               |                                                                  |            |                            |
| 10.3.3.1      | EN-DC FR1 SCell Activation and Deactivation of known NR SCell with NR PSCell and NR SCell under CCA, 160 ms SCell measurement cycle | Rel-16  | C207h         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access, and 2DL CA |                                                                  | 2Rx<br>4Rx |                            |
| 10.3.3.2      | EN-DC FR1 SCell Activation and Deactivation of known NR SCell with NR PSCell and NR SCell under CCA, 640 ms SCell measurement cycle | Rel-16  | C207h         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access, and 2DL CA |                                                                  | 2Rx<br>4Rx |                            |
| 10.3.3.3      | EN-DC FR1 SCell Activation and Deactivation of unknown NR SCell with NR PSCell and NR SCell under CCA                               | Rel-16  | C207h         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access, and 2DL CA |                                                                  | 2Rx<br>4Rx |                            |
| <b>10.3.4</b> | <b>Beam failure detection and link recovery procedures</b>                                                                          |         |               |                                                                                                                                                                               |                                                                  |            |                            |

| Clause          | TC Title                                                                                                                                    | Release | Applicability |                                                                                                                                                                                                                                                                                                                        | Additional Information                                             | Branch     | Subtest Selection Criteria |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------|----------------------------|
|                 |                                                                                                                                             |         | Condition     | Comment                                                                                                                                                                                                                                                                                                                |                                                                    |            |                            |
| 10.3.4.1        | EN-DC FR1 EN-DC Beam Failure Detection and Link Recovery Test for FR1 PSCell under CCA configured with SSB-based BFD and LR in non-DRX mode | Rel-16  | C206b         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL, RLM and BFR/CBD) in dynamic channel access or in semi-static channel access                                                                                                                                     | Test execution not necessary if test 11.4.4.1 has been executed.   | 2Rx<br>4Rx |                            |
| 10.3.4.2        | EN-DC FR1 EN-DC Beam Failure Detection and Link Recovery Test for FR1 PSCell under CCA configured with SSB-based BFD and LR in DRX mode     | Rel-16  | C206c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL, RLM and BFR/CBD) in dynamic channel access or in semi-static channel access and long DRX                                                                                                                        | Test execution not necessary if test 11.4.4.2 has been executed.   | 2Rx<br>4Rx |                            |
| <b>10.3.5</b>   | <b>Active BWP switching</b>                                                                                                                 |         |               |                                                                                                                                                                                                                                                                                                                        |                                                                    |            |                            |
| 10.3.5.1        | EN-DC FR1 UL active BWP switch delay with consistent UL LBT failure on PSCell subject to UL CCA in EN-DC                                    | Rel-16  | C207g         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and (DCI and timer based active BWP switching delay Type1 or Type2) and (Support of BWP adaptation upto2 or upto4) and UL LBT detection and recovery | Test execution not necessary if test 11.4.5.1 has been executed.   | 2Rx<br>4Rx |                            |
| <b>10.3.5.2</b> | <b>DCI-based and timer-based active BWP switch</b>                                                                                          |         |               |                                                                                                                                                                                                                                                                                                                        |                                                                    |            |                            |
| 10.3.5.2.1      | EN-DC FR1 DCI-based DL active BWP switch in non-DRX in synchronous EN-DC under CCA                                                          | Rel-16  | C207          | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and (DCI and timer based active BWP switching delay Type1 or Type2) and (Support of BWP adaptation upto2 or upto4)                                   | Test execution not necessary if test 10.3.5.2.2 has been executed. | 2Rx<br>4Rx |                            |

| Clause          | TC Title                                                                                      | Release | Applicability |                                                                                                                                                                                                                                                                                                 | Additional Information                                             | Branch     | Subtest Selection Criteria |
|-----------------|-----------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------|----------------------------|
|                 |                                                                                               |         | Condition     | Comment                                                                                                                                                                                                                                                                                         |                                                                    |            |                            |
| 10.3.5.2.2      | EN-DC FR1 DCI-based DL active BWP switch with SCell in non-DRX in synchronous EN-DC under CCA | Rel-16  | C207a         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and (DCI and timer based active BWP switching delay Type1 or Type2) and (Support of BWP adaptation upto2 or upto4) and 2DL CA |                                                                    | 2Rx<br>4Rx |                            |
| <b>10.3.5.3</b> | <b>RRC-based Active BWP Switch</b>                                                            |         |               |                                                                                                                                                                                                                                                                                                 |                                                                    |            |                            |
| 10.3.5.3.1      | EN-DC FR1 RRC-based DL active BWP switch in non-DRX in synchronous EN-DC under CCA            | Rel-16  | C207b         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and (Support of BWP adaptation upto2 or upto4)                                                                                | Test execution not necessary if test 11.4.5.3.1 has been executed. | 2Rx<br>4Rx |                            |
| <b>10.3.6</b>   | <b>PSCell addition and release delay</b>                                                      |         |               |                                                                                                                                                                                                                                                                                                 |                                                                    |            |                            |
| 10.3.6.1        | Addition and Release Delay of known NR PSCell on the carrier under CCA                        | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access                                                                                                                               |                                                                    | 2Rx<br>4Rx |                            |
| <b>10.4</b>     | <b>Measurement Procedures</b>                                                                 |         |               |                                                                                                                                                                                                                                                                                                 |                                                                    |            |                            |
| <b>10.4.1</b>   | <b>Intra-Frequency Measurements</b>                                                           |         |               |                                                                                                                                                                                                                                                                                                 |                                                                    |            |                            |
| 10.4.1.1        | EN-DC FR1 Event-triggered reporting tests on PSCC without gaps under non-DRX and CCA          | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                                                                                                                        | Test execution not necessary if test 11.5.1.1 has been executed.   | 2Rx<br>4Rx |                            |
| 10.4.1.2        | Void                                                                                          |         |               |                                                                                                                                                                                                                                                                                                 |                                                                    |            |                            |
| 10.4.1.3        | Void                                                                                          |         |               |                                                                                                                                                                                                                                                                                                 |                                                                    |            |                            |
| 10.4.1.4        | EN-DC FR1 Event-triggered reporting tests on PSCC with per-UE gaps under DRX and CCA          | Rel-16  | C207e         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle                                                                                                     |                                                                    | 2Rx<br>4Rx |                            |
| <b>10.4.2</b>   | <b>Inter-Frequency Measurements</b>                                                           |         |               |                                                                                                                                                                                                                                                                                                 |                                                                    |            |                            |

| Clause   | TC Title                                                                                                            | Release | Applicability |                                                                                                                                                                                             | Additional Information                                           | Branch     | Subtest Selection Criteria |
|----------|---------------------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|          |                                                                                                                     |         | Condition     | Comment                                                                                                                                                                                     |                                                                  |            |                            |
| 10.4.2.1 | Void                                                                                                                |         |               |                                                                                                                                                                                             |                                                                  |            |                            |
| 10.4.2.2 | Void                                                                                                                |         |               |                                                                                                                                                                                             |                                                                  |            |                            |
| 10.4.2.3 | EN-DC FR1-FR1 Event-triggered reporting for FR1 cell with CCA without SSB time index detection when DRX is not used | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                    | Test execution not necessary if test 11.5.2.3 has been executed. | 2Rx<br>4Rx |                            |
| 10.4.2.4 | EN-DC FR1-FR1 Event triggered reporting for FR1 cell with CCA without SSB time index detection when DRX is used     | Rel-16  | C207e         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle | Test execution not necessary if test 11.5.2.4 has been executed. | 2Rx<br>4Rx |                            |
| 10.4.2.5 | EN-DC FR1-FR1 Event-triggered reporting for FR1 cell with CCA with SSB time index detection when DRX is not used    | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                    | Test execution not necessary if test 11.5.2.5 has been executed. | 2Rx<br>4Rx |                            |
| 10.4.2.6 | EN-DC FR1-FR1 Event triggered reporting for FR1 cell with CCA with SSB time index detection when DRX is used        | Rel-16  | C207e         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle | Test execution not necessary if test 11.5.2.6 has been executed. | 2Rx<br>4Rx |                            |
| 10.4.2.7 | EN-DC FR1-FR1 Event-triggered reporting for FR1 cell without SSB time index detection when DRX is not used          | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                    | Test execution not necessary if test 11.5.2.7 has been executed. | 2Rx<br>4Rx |                            |
| 10.4.2.8 | EN-DC FR1-FR1 Event triggered reporting for FR1 cell without SSB time index detection when DRX is used              | Rel-16  | C207e         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle | Test execution not necessary if test 11.5.2.8 has been executed. | 2Rx<br>4Rx |                            |

| Clause        | TC Title                                                                                                | Release | Applicability |                                                                                                                                                                                             | Additional Information                                            | Branch     | Subtest Selection Criteria |
|---------------|---------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                         |         | Condition     | Comment                                                                                                                                                                                     |                                                                   |            |                            |
| 10.4.2.9      | EN-DC FR1-FR1 Event-triggered reporting for FR1 cell with SSB time index detection when DRX is not used | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                    | Test execution not necessary if test 11.5.2.9 has been executed.  | 2Rx<br>4Rx |                            |
| 10.4.2.10     | EN-DC FR1-FR1 Event triggered reporting for FR1 cell with SSB time index detection when DRX is used     | Rel-16  | C207e         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle | Test execution not necessary if test 11.5.2.10 has been executed. | 2Rx<br>4Rx |                            |
| <b>10.4.3</b> | <b>L1-RSRP measurements for beam reporting under CCA</b>                                                |         |               |                                                                                                                                                                                             |                                                                   |            |                            |
| 10.4.3.1      | EN-DC FR1 SSB based L1-RSRP measurement on PSCC under CCA when DRX is not used                          | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access                           | Test execution not necessary if test 11.5.4.1 has been executed.  | 2Rx<br>4Rx |                            |
| 10.4.3.2      | EN-DC FR1 SSB based L1-RSRP measurement on PSCC under CCA when DRX is used                              | Rel-16  | C207i         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and long DRX              | Test execution not necessary if test 11.5.4.2 has been executed.  | 2Rx<br>4Rx |                            |
| 10.4.3.3      | EN-DC FR1 SSB based L1-RSRP measurement on SCC under CCA when DRX is not used                           | Rel-16  | C207c         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access                           | Test execution not necessary if test 11.5.4.3 has been executed.  | 2Rx<br>4Rx |                            |
| 10.4.3.4      | EN-DC FR1 SSB based L1-RSRP measurement on SCC under CCA when DRX is used                               | Rel-16  | C207i         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and long DRX              | Test execution not necessary if test 11.5.4.4 has been executed.  | 2Rx<br>4Rx |                            |
| <b>10.4.4</b> | <b>E-UTRAN-NR inter-RAT measurements on NR carrier frequency under CCA</b>                              |         |               |                                                                                                                                                                                             |                                                                   |            |                            |

| Clause        | TC Title                                                                                                                    | Release | Applicability |                                                                                                                                                                                             | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                                             |         | Condition     | Comment                                                                                                                                                                                     |                                                                  |            |                            |
| 10.4.4.1      | EN-DC FR1 E-UTRA-NR inter-RAT event triggered reporting tests for FR1 without SSB time index detection when DRX is not used | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                    | Test execution not necessary if test 11.5.3.1 has been executed. | 2Rx<br>4Rx |                            |
| 10.4.4.2      | EN-DC FR1 E-UTRA-NR inter-RAT event triggered reporting tests for FR1 without SSB time index detection when DRX is used     | Rel-16  | C207e         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle | Test execution not necessary if test 11.5.3.2 has been executed. | 2Rx<br>4Rx |                            |
| 10.4.4.3      | EN-DC FR1 NR Inter-RAT event triggered reporting tests for FR1 with SSB time index detection when DRX is not used           | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                    |                                                                  | 2Rx<br>4Rx |                            |
| 10.4.4.4      | EN-DC FR1 NR Inter-RAT event triggered reporting tests for FR1 with SSB time index detection when DRX is used               | Rel-16  | C207e         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle |                                                                  | 2Rx<br>4Rx |                            |
| <b>10.5</b>   | <b>Measurement Performance</b>                                                                                              |         |               |                                                                                                                                                                                             |                                                                  |            |                            |
| <b>10.5.1</b> | <b>SS-RSRP</b>                                                                                                              |         |               |                                                                                                                                                                                             |                                                                  |            |                            |
| 10.5.1.1      | EN-DC FR1 intra-frequency SS-RSRP measurement accuracy on a CCA serving cell                                                | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                    | Test execution not necessary if test 11.6.1.1 has been executed. | 2Rx<br>4Rx |                            |
| 10.5.1.2      | EN-DC FR1-FR1 inter-frequency SS-RSRP measurement accuracy with CCA serving cell and CCA target cell                        | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                    |                                                                  | 2Rx<br>4Rx |                            |
| <b>10.5.2</b> | <b>SS-RSRQ</b>                                                                                                              |         |               |                                                                                                                                                                                             |                                                                  |            |                            |

| Clause        | TC Title                                                                                               | Release | Applicability |                                                                                                                                                                                                                                 | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|--------------------------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                        |         | Condition     | Comment                                                                                                                                                                                                                         |                                                                  |            |                            |
| 10.5.2.1      | EN-DC FR1 intra-frequency SS-RSRQ measurement accuracy with serving cell and target cell under CCA     | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                                                        | Test execution not necessary if test 11.6.2.1 has been executed. | 2Rx<br>4Rx |                            |
| 10.5.2.2      | EN-DC FR1-FR1 inter-frequency SS-RSRQ measurement accuracy with serving cell and target cell under CCA | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                                                        | Test execution not necessary if test 11.6.2.2 has been executed. | 2Rx<br>4Rx |                            |
| <b>10.5.3</b> | <b>SS-SINR</b>                                                                                         |         |               |                                                                                                                                                                                                                                 |                                                                  |            |                            |
| 10.5.3.1      | EN-DC FR1 intra-frequency SS-SINR measurement accuracy on PSCC under CCA                               | Rel-16  | C207f         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and SS-SINR measurements on shared spectrum            | Test execution not necessary if test 11.6.3.1 has been executed. | 2Rx<br>4Rx |                            |
| 10.5.3.2      | EN-DC FR1-FR1 inter-frequency SS-SINR measurement accuracy on PSCC under CCA                           | Rel-16  | C207f         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and SS-SINR measurements on shared spectrum            | Test execution not necessary if test 11.6.3.2 has been executed. | 2Rx<br>4Rx |                            |
| 10.5.3.3      | EN-DC FR1 intra-frequency SS-SINR measurement accuracy on SCC under CCA                                | Rel-16  | C207j         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and SS-SINR measurements on shared spectrum and 2DL CA | Test execution not necessary if test 11.6.3.3 has been executed. | 2Rx<br>4Rx |                            |
| <b>10.5.4</b> | <b>L1-RSRP measurement for beam reporting with CCA serving cell</b>                                    |         |               |                                                                                                                                                                                                                                 |                                                                  |            |                            |

| Clause        | TC Title                                                          | Release | Applicability |                                                                                                                                                                                                             | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|-------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                   |         | Condition     | Comment                                                                                                                                                                                                     |                                                                  |            |                            |
| 10.5.4.1      | EN-DC FR1 SSB based L1-RSRP measurement accuracy with CCA         | Rel-16  | C207d         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access                                    | Test execution not necessary if test 11.6.4.1 has been executed. | 2Rx<br>4Rx |                            |
| <b>10.5.5</b> | <b>RSSI</b>                                                       |         |               |                                                                                                                                                                                                             |                                                                  |            |                            |
| 10.5.5.1      | EN-DC FR1 RSSI measurement accuracy on PSCC with CCA              | Rel-16  | C207k         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and RSSI measurements              | Test execution not necessary if test 11.6.5.1 has been executed. | 2Rx<br>4Rx |                            |
| 10.5.5.2      | EN-DC FR1 RSSI measurement accuracy on SCC with CCA               | Rel-16  | C207l         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and RSSI measurements and 2DL CA   | Test execution not necessary if test 11.6.5.2 has been executed. | 2Rx<br>4Rx |                            |
| 10.5.5.3      | EN-DC FR1-FR1 RSSI measurement accuracy on a carrier with CCA     | Rel-16  | C207k         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and RSSI measurements              | Test execution not necessary if test 11.6.5.3 has been executed. | 2Rx<br>4Rx |                            |
| <b>10.5.6</b> | <b>Channel occupancy</b>                                          |         |               |                                                                                                                                                                                                             |                                                                  |            |                            |
| 10.5.6.1      | EN-DC FR1 Channel occupancy measurement accuracy on PSCC with CCA | Rel-16  | C207k         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and Channel Occupancy measurements | Test execution not necessary if test 11.6.6.1 has been executed. | 2Rx<br>4Rx |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                   | Release | Applicability |                                                                                                                                                                                                                        | Additional Information                                           | Branch     | Subtest Selection Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                            |         | Condition     | Comment                                                                                                                                                                                                                |                                                                  |            |                            |
| 10.5.6.2                                                                                                                                                                                                                                                                                                                                                                                 | EN-DC FR1 Channel occupancy measurement accuracy on SCC with CCA           | Rel-16  | C207l         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and Channel Occupancy measurements and 2DL CA | Test execution not necessary if test 11.6.6.2 has been executed. | 2Rx<br>4Rx |                            |
| 10.5.6.3                                                                                                                                                                                                                                                                                                                                                                                 | EN-DC FR1-FR1 Channel occupancy measurement accuracy on a carrier with CCA | Rel-16  | C207k         | UE supporting EN-DC TDD FR1 and NR-U (scenario B) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and Channel Occupancy measurements            | Test execution not necessary if test 11.6.6.3 has been executed. | 2Rx<br>4Rx |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                            |         |               |                                                                                                                                                                                                                        |                                                                  |            |                            |

**Table 4.2-11: Applicability of NR-U SA FR1 conformance test cases, ref. TS 38.533 [5]**

| Clause          | TC Title                                                                                                      | Release | Applicability |                                                                                                                                                                                                | Additional Information | Branch     | Subtest Selection Criteria |
|-----------------|---------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|                 |                                                                                                               |         | Condition     | Comment                                                                                                                                                                                        |                        |            |                            |
| <b>11.1</b>     | <b>RRC_IDLE state mobility</b>                                                                                |         |               |                                                                                                                                                                                                |                        |            |                            |
| <b>11.1.1</b>   | <b>Cell re-selection with both source and target NR carrier frequencies under CCA</b>                         |         |               |                                                                                                                                                                                                |                        |            |                            |
| <b>11.1.1.1</b> | NR SA FR1 Cell reselection to FR1 intra-frequency NR cells when subject to CCA on the serving and target cell | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| <b>11.1.1.2</b> | NR SA FR1 Cell reselection to FR1 inter-frequency NR case when subject to CCA on the serving and target cell  | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| <b>11.1.2</b>   | <b>Cell re-selection to NR with source NR carrier frequency under CCA</b>                                     |         |               |                                                                                                                                                                                                |                        |            |                            |
| <b>11.1.2.1</b> | NR SA FR1 Cell re-selection to NR with source NR carrier frequency under CCA                                  | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| <b>11.1.3</b>   | <b>Cell re-selection from NR carrier with target NR carrier frequency under CCA</b>                           |         |               |                                                                                                                                                                                                |                        |            |                            |
| <b>11.1.3.1</b> | NR SA FR1 Cell re-selection from NR carrier with target NR carrier frequency under CCA                        | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| <b>11.1.4</b>   | <b>Inter-RAT cell re-selection to E-UTRAN with source NR carrier frequency under CCA</b>                      |         |               |                                                                                                                                                                                                |                        |            |                            |
| <b>11.1.4.1</b> | NR SA FR1 Cell reselection to higher priority E-UTRAN when serving cell is subject to CCA                     | Rel-16  | C321b         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and E-UTRA |                        | 2Rx<br>4Rx |                            |

| Clause   | TC Title                                                                                                    | Release | Applicability |                                                                                                                                                                                                | Additional Information | Branch     | Subtest Selection Criteria |
|----------|-------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|          |                                                                                                             |         | Condition     | Comment                                                                                                                                                                                        |                        |            |                            |
| 11.1.4.2 | NR SA FR1 Cell reselection to lower priority E-UTRAN when serving cell is subject to CCA                    | Rel-16  | C321b         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and E-UTRA |                        | 2Rx<br>4Rx |                            |
| 11.2     | <b>RRC_CONNECTED state mobility</b>                                                                         |         |               |                                                                                                                                                                                                |                        |            |                            |
| 11.2.1   | <b>Handover</b>                                                                                             |         |               |                                                                                                                                                                                                |                        |            |                            |
| 11.2.1.1 | NR SA FR1 Intra-frequency handover from FR1 carrier under CCA to FR1 carrier under CCA; known target cell   | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| 11.2.1.2 | NR SA FR1 Intra-frequency handover from FR1 carrier under CCA to FR1 carrier under CCA; unknown target cell | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| 11.2.1.3 | NR SA FR1 Inter-frequency handover from FR1 carrier under CCA to FR1 carrier under CCA; unknown target cell | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| 11.2.1.4 | NR SA FR1 Inter-frequency handover from FR1 carrier under CCA to FR1; known target cell                     | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| 11.2.1.5 | NR SA FR1 Inter-frequency handover from FR1 carrier under CCA to FR1; unknown target cell                   | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |

| Clause     | TC Title                                                                                  | Release | Applicability |                                                                                                                                                                                                | Additional Information | Branch     | Subtest Selection Criteria |
|------------|-------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|            |                                                                                           |         | Condition     | Comment                                                                                                                                                                                        |                        |            |                            |
| 11.2.1.6   | NR SA FR1 Inter-frequency handover from FR1 to FR1 carrier under CCA; unknown target cell | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| 11.2.1.7   | NR SA FR1 carrier under CCA - E-UTRAN handover with known target cell                     | Rel-16  | C321b         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and E-UTRA |                        | 2Rx<br>4Rx |                            |
| 11.2.1.8   | NR SA FR1 carrier under CCA - E-UTRAN handover with unknown target cell                   | Rel-16  | C321b         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and E-UTRA |                        | 2Rx<br>4Rx |                            |
| 11.2.1.9   | Void                                                                                      |         |               |                                                                                                                                                                                                |                        |            |                            |
| 11.2.2     | <b>RRC connection mobility control</b>                                                    |         |               |                                                                                                                                                                                                |                        |            |                            |
| 11.2.2.1   | <b>RRC re-establishment</b>                                                               |         |               |                                                                                                                                                                                                |                        |            |                            |
| 11.2.2.1.1 | NR SA FR1 Intra-frequency RRC Re-establishment with CCA in FR1                            | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| 11.2.2.1.2 | NR SA FR1 Inter-frequency RRC Re-establishment with CCA in FR1                            | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |
| 11.2.2.1.3 | NR SA FR1 Intra-frequency RRC Re-establishment with CCA without serving cell timing       | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access            |                        | 2Rx<br>4Rx |                            |

| Clause     | TC Title                                                                                                   | Release | Applicability |                                                                                                                                                                                                     | Additional Information                                             | Branch     | Subtest Selection Criteria |
|------------|------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------|----------------------------|
|            |                                                                                                            |         | Condition     | Comment                                                                                                                                                                                             |                                                                    |            |                            |
| 11.2.2.1.4 | NR SA FR1 Inter-frequency RRC Re-establishment from NR FR1 carrier without CCA to NR FR1 carrier under CCA | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access                 |                                                                    | 2Rx<br>4Rx |                            |
| 11.2.2.2   | <b>Random Access</b>                                                                                       |         |               |                                                                                                                                                                                                     |                                                                    |            |                            |
| 11.2.2.2.1 | NR SA FR1 4-step RA type contention-based random access for NR PCell with CCA                              | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access                 | Test execution not necessary if test 10.1.1.1.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.2.2.2.2 | NR SA FR1 4-step RA type non-contention based random access for NR PSCell with CCA                         | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access                 | Test execution not necessary if test 10.1.1.1.2 has been executed. | 2Rx<br>4Rx |                            |
| 11.2.2.2.3 | NR SA FR1 2-step RA type contention-based random access for NR PCell with CCA                              | Rel-16  | C321c         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and 2-step RACH | Test execution not necessary if test 10.1.1.1.3 has been executed. | 2Rx<br>4Rx |                            |
| 11.2.2.2.4 | NR SA FR1 2-step RA type non-contention-based random access for NR PCell with CCA                          | Rel-16  | C321c         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and 2-step RACH | Test execution not necessary if test 10.1.1.1.4 has been executed. | 2Rx<br>4Rx |                            |
| 11.2.2.3   | <b>RRC connection release with redirection</b>                                                             |         |               |                                                                                                                                                                                                     |                                                                    |            |                            |
| 11.2.2.3.1 | NR SA FR1 Redirection from NR FR1 carrier under CCA to NR FR1 carrier under CCA                            | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access                 |                                                                    | 2Rx<br>4Rx |                            |

| Clause     | TC Title                                                                                                               | Release | Applicability |                                                                                                                                                                                          | Additional Information                                           | Branch     | Subtest Selection Criteria |
|------------|------------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|            |                                                                                                                        |         | Condition     | Comment                                                                                                                                                                                  |                                                                  |            |                            |
| 11.2.2.3.2 | NR SA FR1 Redirection from NR FR1 carrier without CCA to NR FR1 carrier with CCA                                       | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access      |                                                                  | 2Rx<br>4Rx |                            |
| 11.3       | Timing                                                                                                                 |         |               |                                                                                                                                                                                          |                                                                  |            |                            |
| 11.3.1     | UE transmit timing                                                                                                     |         |               |                                                                                                                                                                                          |                                                                  |            |                            |
| 11.3.1.1   | NR SA FR1 UE Transmit Timing Test with PCell under DL CCA                                                              | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access      | Test execution not necessary if test 10.2.1.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.3.2     | UE timing advance                                                                                                      |         |               |                                                                                                                                                                                          |                                                                  |            |                            |
| 11.3.2.1   | NR SA FR1 UE Timing Advance Adjustment Accuracy with PCell under DL CCA                                                | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access      | Test execution not necessary if test 10.2.2.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.4       | Signalling characteristics                                                                                             |         |               |                                                                                                                                                                                          |                                                                  |            |                            |
| 11.4.1     | Radio link monitoring                                                                                                  |         |               |                                                                                                                                                                                          |                                                                  |            |                            |
| 11.4.1.2   | EN-DC FR1 Radio link monitoring out-of-sync test for PSCell under CCA configured with SSB-based RLM RS in non-DRX mode | Rel-16  | C322          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL and RLM) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 10.3.1.2 has been executed. | 2Rx<br>4Rx |                            |
| 11.4.1.3   | EN-DC FR1 Radio link monitoring in-sync test for PSCell under CCA configured with SSB-based RLM RS in non-DRX mode     | Rel-16  | C322          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL and RLM) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 10.3.1.3 has been executed. | 2Rx<br>4Rx |                            |
| 11.4.2     | Void                                                                                                                   |         |               |                                                                                                                                                                                          |                                                                  |            |                            |
| 11.4.3     | SCell activation and deactivation delay                                                                                |         |               |                                                                                                                                                                                          |                                                                  |            |                            |

| Clause        | TC Title                                                                                                                                    | Release | Applicability |                                                                                                                                                                                                                | Additional Information                                           | Branch     | Subtest Selection Criteria |
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|               |                                                                                                                                             |         | Condition     | Comment                                                                                                                                                                                                        |                                                                  |            |                            |
| 11.4.3.1      | NR SA FR1 SCell Activation and Deactivation of known SCell with PCell and SCell under CCA, 160 ms SCell measurement cycle                   | Rel-16  | C321a         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access, and 2DL CA                |                                                                  | 2Rx<br>4Rx |                            |
| 11.4.3.2      | NR SA FR1 SCell Activation and Deactivation of known SCell with PCell and SCell under CCA, 640 ms SCell measurement cycle                   | Rel-16  | C321a         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access, and 2DL CA                |                                                                  | 2Rx<br>4Rx |                            |
| 11.4.3.3      | NR SA FR1 SCell Activation and Deactivation of unknown SCell with PCell and SCell under CCA                                                 | Rel-16  | C321a         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access, and 2DL CA                |                                                                  | 2Rx<br>4Rx |                            |
| <b>11.4.4</b> | <b>Beam failure detection and link recovery procedures</b>                                                                                  |         |               |                                                                                                                                                                                                                |                                                                  |            |                            |
| 11.4.4.1      | EN-DC FR1 EN-DC Beam Failure Detection and Link Recovery Test for FR1 PSCell under CCA configured with SSB-based BFD and LR in non-DRX mode | Rel-16  | C323          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL, RLM and BFR/CBD) in dynamic channel access or in semi-static channel access              | Test execution not necessary if test 10.3.4.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.4.4.2      | EN-DC FR1 EN-DC Beam Failure Detection and Link Recovery Test for FR1 PSCell under CCA configured with SSB-based BFD and LR in DRX mode     | Rel-16  | C324          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL, RLM and BFR/CBD) in dynamic channel access or in semi-static channel access and long DRX | Test execution not necessary if test 10.3.4.2 has been executed. | 2Rx<br>4Rx |                            |
| <b>11.4.5</b> | <b>Active BWP switching</b>                                                                                                                 |         |               |                                                                                                                                                                                                                |                                                                  |            |                            |

| Clause          | TC Title                                                                                       | Release | Applicability |                                                                                                                                                                                                                                                                                                                                          | Additional Information                                             | Branch     | Subtest Selection Criteria |
|-----------------|------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------|----------------------------|
|                 |                                                                                                |         | Condition     | Comment                                                                                                                                                                                                                                                                                                                                  |                                                                    |            |                            |
| 11.4.5.1        | NR SA FR1 UL active BWP switch delay with consistent UL LBT failure on PCell subject to UL CCA | Rel-16  | C325          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and (DCI and timer based active BWP switching delay Type1 or Type2) and (Support of BWP adaptation upto2 or upto4) and UL LBT detection and recovery | Test execution not necessary if test 10.3.5.1 has been executed.   | 2Rx<br>4Rx |                            |
| <b>11.4.5.2</b> | <b>DCI-based and Timer-based Active BWP Switch</b>                                             |         |               |                                                                                                                                                                                                                                                                                                                                          |                                                                    |            |                            |
| 11.4.5.2.1      | NR SA FR1 - NR FR1 DL active BWP switch of PCell under CCA with non-DRX                        | Rel-16  | C326a         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and (DCI and timer based active BWP switching delay Type1 or Type2) and (Support of BWP adaptation upto2 or upto4) and 2DL CA                        | Test execution not necessary if test 10.3.5.2.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.4.5.2.2      | NR SA FR1 DCI-based DL active BWP switch with non-DRX under CCA                                | Rel-16  | C326          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and (DCI and timer based active BWP switching delay Type1 or Type2) and (Support of BWP adaptation upto2 or upto4)                                   | Test execution not necessary if test 10.3.5.2.2 has been executed. | 2Rx<br>4Rx |                            |
| <b>11.4.5.3</b> | <b>RRC-based Active BWP Switch</b>                                                             |         |               |                                                                                                                                                                                                                                                                                                                                          |                                                                    |            |                            |
| 11.4.5.3.1      | NR SA FR1 DL active BWP switch of Cell with non-DRX                                            | Rel-16  | C327          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and (Support of BWP adaptation upto2 or upto4)                                                                                                       | Test execution not necessary if test 10.3.5.3.1 has been executed. | 2Rx<br>4Rx |                            |

| Clause        | TC Title                                                                                                         | Release | Applicability |                                                                                                                                                                                               | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|------------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                                  |         | Condition     | Comment                                                                                                                                                                                       |                                                                  |            |                            |
| <b>11.5</b>   | <b>Measurement procedure</b>                                                                                     |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| <b>11.5.1</b> | <b>Intra-frequency measurements</b>                                                                              |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.1      | NR SA FR1 Event-triggered reporting tests on PCC under CCA without gaps under non-DRX                            | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access              | Test execution not necessary if test 10.4.1.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.5.1.2      | NR SA FR1 Event-triggered reporting tests on PCC under CCA without gaps under DRX                                | Rel-16  | C206e         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and long DRX |                                                                  | 2Rx<br>4Rx |                            |
| 11.5.1.3      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.4      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.5      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.6      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.7      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.8      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.9      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.10     | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.11     | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.1.12     | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| <b>11.5.2</b> | <b>Inter-frequency measurements</b>                                                                              |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.2.1      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.2.2      | Void                                                                                                             |         |               |                                                                                                                                                                                               |                                                                  |            |                            |
| 11.5.2.3      | NR SA FR1 Event triggered reporting tests for FR1 with CCA without SSB time index detection when DRX is not used | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access           | Test execution not necessary if test 10.4.2.3 has been executed. | 2Rx<br>4Rx |                            |
| 11.5.2.4      | NR SA FR1 Event triggered reporting tests for FR1 with CCA without SSB time index detection when DRX is used     | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access           | Test execution not necessary if test 10.4.2.4 has been executed. | 2Rx<br>4Rx |                            |

| Clause        | TC Title                                                                                                      | Release | Applicability |                                                                                                                                                                                     | Additional Information                                            | Branch     | Subtest Selection Criteria |
|---------------|---------------------------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                               |         | Condition     | Comment                                                                                                                                                                             |                                                                   |            |                            |
| 11.5.2.5      | NR SA FR1 Event triggered reporting tests for FR1 with CCA with SSB time index detection when DRX is not used | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 10.4.2.5 has been executed.  | 2Rx<br>4Rx |                            |
| 11.5.2.6      | NR SA FR1 Event triggered reporting tests for FR1 with CCA with SSB time index detection when DRX is used     | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 10.4.2.6 has been executed.  | 2Rx<br>4Rx |                            |
| 11.5.2.7      | NR SA FR1 Event triggered reporting tests for FR1 without SSB time index detection when DRX is not used       | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 10.4.2.7 has been executed.  | 2Rx<br>4Rx |                            |
| 11.5.2.8      | NR SA FR1 Event triggered reporting tests for FR1 without SSB time index detection when DRX is used           | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 10.4.2.8 has been executed.  | 2Rx<br>4Rx |                            |
| 11.5.2.9      | NR SA FR1 Event triggered reporting tests for FR1 with SSB time index detection when DRX is not used          | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 10.4.2.9 has been executed.  | 2Rx<br>4Rx |                            |
| 11.5.2.10     | NR SA FR1 Event triggered reporting tests for FR1 with SSB time index detection when DRX is used              | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access | Test execution not necessary if test 10.4.2.10 has been executed. | 2Rx<br>4Rx |                            |
| <b>11.5.3</b> | <b>Inter-RAT E-UTRAN measurements</b>                                                                         |         |               |                                                                                                                                                                                     |                                                                   |            |                            |

| Clause        | TC Title                                                                      | Release | Applicability |                                                                                                                                                                                                 | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|-------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                               |         | Condition     | Comment                                                                                                                                                                                         |                                                                  |            |                            |
| 11.5.3.1      | NR SA FR1 - E-UTRAN event-triggered reporting in non-DRX                      | Rel-16  | C321b         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and E-UTRA  | Test execution not necessary if test 10.4.4.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.5.3.2      | NR SA FR1 - E-UTRAN event-triggered reporting in DRX                          | Rel-16  | C321b         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and E-UTRA  | Test execution not necessary if test 10.4.4.2 has been executed. | 2Rx<br>4Rx |                            |
| <b>11.5.4</b> | <b>L1-RSRP measurements for beam reporting</b>                                |         |               |                                                                                                                                                                                                 |                                                                  |            |                            |
| 11.5.4.1      | NR SA FR1 SSB based L1-RSRP measurement when DRX is not used                  | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access             | Test execution not necessary if test 10.4.3.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.5.4.2      | NR SA FR1 SSB based L1-RSRP measurement when DRX is used                      | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access             | Test execution not necessary if test 10.4.3.2 has been executed. | 2Rx<br>4Rx |                            |
| 11.5.4.3      | NR SA FR1 SSB based L1-RSRP measurement on SCC under CCA when DRX is not used | Rel-16  | C321a         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access, and 2DL CA | Test execution not necessary if test 10.4.3.3 has been executed. | 2Rx<br>4Rx |                            |
| 11.5.4.4      | NR SA FR1 SSB based L1-RSRP measurement on SCC under CCA when DRX is used     | Rel-16  | C321a         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access, and 2DL CA | Test execution not necessary if test 10.4.3.4 has been executed. | 2Rx<br>4Rx |                            |
| <b>11.6</b>   | <b>Measurement Performance</b>                                                |         |               |                                                                                                                                                                                                 |                                                                  |            |                            |
| <b>11.6.1</b> | <b>SS-RSRP</b>                                                                |         |               |                                                                                                                                                                                                 |                                                                  |            |                            |

| Clause        | TC Title                                                                                                        | Release | Applicability |                                                                                                                                                                                                 | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|-----------------------------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                                 |         | Condition     | Comment                                                                                                                                                                                         |                                                                  |            |                            |
| 11.6.1.1      | NR SA FR1 intra-frequency SS-RSRP measurement accuracy on a carrier frequency with CCA                          | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access                | Test execution not necessary if test 10.5.1.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.6.1.2      | NR SA FR1 Intra-frequency measurement accuracy on SCC on a carrier frequency with CCA                           | Rel-16  | C321a         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access, and 2DL CA |                                                                  | 2Rx<br>4Rx |                            |
| <b>11.6.2</b> | <b>SS-RSRQ</b>                                                                                                  |         |               |                                                                                                                                                                                                 |                                                                  |            |                            |
| 11.6.2.1      | NR SA FR1 intra-frequency SS-RSRQ measurement accuracy on a carrier frequency with CCA                          | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access                | Test execution not necessary if test 10.5.2.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.6.2.2      | NR SA FR1 inter-frequency SS-RSRQ measurement accuracy on a carrier frequency with CCA                          | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access                | Test execution not necessary if test 10.5.2.2 has been executed. | 2Rx<br>4Rx |                            |
| 11.6.2.3      | NR SA FR1 intra-frequency SS-RSRQ measurement accuracy on SCC on a carrier frequency with CCA                   | Rel-16  | C321a         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and 2DL CA     |                                                                  | 2Rx<br>4Rx |                            |
| 11.6.2.4      | NR SA FR1 Inter-frequency SS-RSRQ measurement accuracy on a carrier frequency with CCA from carrier without CCA | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access                |                                                                  | 2Rx<br>4Rx |                            |
| <b>11.6.3</b> | <b>SS-SINR</b>                                                                                                  |         |               |                                                                                                                                                                                                 |                                                                  |            |                            |

| Clause        | TC Title                                                                                                        | Release | Applicability |                                                                                                                                                                                                                                         | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|-----------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                                                 |         | Condition     | Comment                                                                                                                                                                                                                                 |                                                                  |            |                            |
| 11.6.3.1      | NR SA FR1 Intra-frequency SS-SINR measurement accuracy on a carrier frequency with CCA                          | Rel-16  | C206g         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and SS-SINR measurements on shared spectrum            | Test execution not necessary if test 10.5.3.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.6.3.2      | NR SA FR1 Inter-frequency SS-SINR measurement accuracy on a carrier frequency with CCA                          | Rel-16  | C206g         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and SS-SINR measurements on shared spectrum            | Test execution not necessary if test 10.5.3.2 has been executed. | 2Rx<br>4Rx |                            |
| 11.6.3.3      | NR SA FR1 Intra-frequency SS-SINR measurement accuracy on a carrier frequency with CCA                          | Rel-16  | C206h         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and SS-SINR measurements on shared spectrum and 2DL CA |                                                                  | 2Rx<br>4Rx |                            |
| 11.6.3.4      | NR SA FR1 Inter-frequency SS-SINR measurement accuracy on a carrier frequency with CCA from carrier without CCA |         | C206g         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and SS-SINR measurements on shared spectrum            |                                                                  | 2Rx<br>4Rx |                            |
| <b>11.6.4</b> | <b>L1-RSRP measurement accuracy for beam reporting with CCA serving cell</b>                                    |         |               |                                                                                                                                                                                                                                         |                                                                  |            |                            |
| 11.6.4.1      | NR SA FR1 SSB based L1-RSRP measurement accuracy with CCA                                                       | Rel-16  | C321          | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access                                                        | Test execution not necessary if test 10.5.4.1 has been executed. | 2Rx<br>4Rx |                            |
| <b>11.6.5</b> | <b>RSSI</b>                                                                                                     |         |               |                                                                                                                                                                                                                                         |                                                                  |            |                            |

| Clause        | TC Title                                                                         | Release | Applicability |                                                                                                                                                                                                                                | Additional Information                                           | Branch     | Subtest Selection Criteria |
|---------------|----------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|               |                                                                                  |         | Condition     | Comment                                                                                                                                                                                                                        |                                                                  |            |                            |
| 11.6.5.1      | NR SA FR1 Intra-frequency RSSI measurement accuracy on PCC with CCA              | Rel-16  | C206f         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and RSSI measurements                         | Test execution not necessary if test 10.5.5.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.6.5.2      | NR SA FR1 Intra-frequency RSSI measurement accuracy on SCC with CCA              | Rel-16  | C206i         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and RSSI measurements and 2DL CA              | Test execution not necessary if test 10.5.5.2 has been executed. | 2Rx<br>4Rx |                            |
| 11.6.5.3      | NR SA FR1 Inter-frequency RSSI measurement accuracy on a carrier with CCA        | Rel-16  | C206f         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and RSSI measurements                         | Test execution not necessary if test 10.5.5.3 has been executed. | 2Rx<br>4Rx |                            |
| <b>11.6.6</b> | <b>Channel occupancy</b>                                                         |         |               |                                                                                                                                                                                                                                |                                                                  |            |                            |
| 11.6.6.1      | NR SA FR1 Intra-frequency channel occupancy measurement accuracy on PCC with CCA |         | C206f         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and Channel Occupancy measurements            | Test execution not necessary if test 10.5.6.1 has been executed. | 2Rx<br>4Rx |                            |
| 11.6.6.2      | NR SA FR1 Intra-frequency channel occupancy measurement accuracy on SCC with CCA |         | C206i         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and Channel Occupancy measurements and 2DL CA | Test execution not necessary if test 10.5.6.2 has been executed. | 2Rx<br>4Rx |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                               | Release | Applicability |                                                                                                                                                                                                                     | Additional Information                                           | Branch     | Subtest Selection Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|----------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                        |         | Condition     | Comment                                                                                                                                                                                                             |                                                                  |            |                            |
| 11.6.6.3                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 Inter-frequency channel occupancy measurement accuracy on a carrier with CCA |         | C206f         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM, UL) in dynamic channel access or in semi-static channel access and Channel Occupancy measurements | Test execution not necessary if test 10.5.6.3 has been executed. | 2Rx<br>4Rx |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                                        |         |               |                                                                                                                                                                                                                     |                                                                  |            |                            |

**Table 4.2-12: Applicability of E-UTRA – NR-U Inter-RAT FR1 conformance test cases, ref. TS 38.533 [5]**

| Clause        | TC Title                                                                                                           | Release | Applicability |                                                                                                                                                                                                 | Additional Information | Branch     | Subtest Selection Criteria |
|---------------|--------------------------------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|               |                                                                                                                    |         | Condition     | Comment                                                                                                                                                                                         |                        |            |                            |
| <b>12.1</b>   | <b>RRC_IDLE state mobility</b>                                                                                     |         |               |                                                                                                                                                                                                 |                        |            |                            |
| <b>12.1.1</b> | <b>Inter-RAT cell re-selection to NR on a carrier frequency with CCA</b>                                           |         |               |                                                                                                                                                                                                 |                        |            |                            |
| 12.1.1.1      | E-UTRA Cell reselection to higher priority NR target Cell in FR1 when target cell is subject to CCA                | Rel-16  | C321b         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and E-UTRAN |                        | 2Rx<br>4Rx |                            |
| <b>12.2</b>   | <b>RRC_CONNECTED state mobility</b>                                                                                |         |               |                                                                                                                                                                                                 |                        |            |                            |
| <b>12.2.1</b> | <b>Handover</b>                                                                                                    |         |               |                                                                                                                                                                                                 |                        |            |                            |
| 12.2.1.1      | E-UTRAN - NR with CCA handover with known target cell                                                              | Rel-16  | C321b         | UE supporting SA TDD FR1 in unlicensed band (scenario C) and (MIB, SIB1) acquisition on shared spectrum and (RRM and UL) in dynamic channel access or in semi-static channel access and E-UTRAN |                        | 2Rx<br>4Rx |                            |
| <b>12.3</b>   | <b>Void</b>                                                                                                        |         |               |                                                                                                                                                                                                 |                        |            |                            |
| <b>12.4</b>   | <b>Measurement Procedure</b>                                                                                       |         |               |                                                                                                                                                                                                 |                        |            |                            |
| <b>12.4.1</b> | <b>E-UTRAN-NR inter-RAT SFTD measurements</b>                                                                      |         |               |                                                                                                                                                                                                 |                        |            |                            |
| 12.4.1.1      | E-UTRA – NR Inter-RAT SFTD Measurement Delay with NR under CCA in non-DRX                                          | Rel-16  | C086d         | UE supporting E-UTRAN, NR RRM measurements in dynamic channel access or in semi-static channel access and SFTD                                                                                  |                        | 2Rx<br>4Rx |                            |
| <b>12.4.2</b> | <b>E-UTRAN-NR inter-RAT measurements on NR carrier frequency under CCA</b>                                         |         |               |                                                                                                                                                                                                 |                        |            |                            |
| 12.4.2.1      | E-UTRAN-NR FR1 inter-RAT event triggered reporting without SSB time index detection when DRX is not used under CCA | Rel-16  | C086b         | UE supporting E-UTRAN and NR RRM measurements in dynamic channel access or in semi-static channel access                                                                                        |                        | 2Rx<br>4Rx |                            |
| 12.4.2.2      | E-UTRAN-NR FR1 inter-RAT event triggered reporting without SSB time index detection when DRX is used under CCA     | Rel-16  | C086c         | UE supporting E-UTRAN and NR RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle                                                                     |                        | 2Rx<br>4Rx |                            |
| 12.4.2.3      | E-UTRAN-NR FR1 inter-RAT event triggered reporting with SSB time index detection when DRX is not used under CCA    | Rel-16  | C086b         | UE supporting E-UTRAN and NR RRM measurements in dynamic channel access or in semi-static channel access                                                                                        |                        | 2Rx<br>4Rx |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                                                    | Release | Applicability |                                                                                                                             | Additional Information | Branch     | Subtest Selection Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                             |         | Condition     | Comment                                                                                                                     |                        |            |                            |
| 12.4.2.4                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRAN-NR FR1 inter-RAT event triggered reporting with SSB time index detection when DRX is used under CCA | Rel-16  | C086c         | UE supporting E-UTRAN and NR RRM measurements in dynamic channel access or in semi-static channel access and long DRX cycle |                        | 2Rx<br>4Rx |                            |
| 12.4.2.5                                                                                                                                                                                                                                                                                                                                                                                 | Void                                                                                                        |         |               |                                                                                                                             |                        |            |                            |
| 12.4.2.6                                                                                                                                                                                                                                                                                                                                                                                 | Void                                                                                                        |         |               |                                                                                                                             |                        |            |                            |
| <b>12.5</b>                                                                                                                                                                                                                                                                                                                                                                              | <b>Measurement Performance</b>                                                                              |         |               |                                                                                                                             |                        |            |                            |
| <b>12.5.1</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>E-UTRAN-NR SFTD</b>                                                                                      |         |               |                                                                                                                             |                        |            |                            |
| 12.5.1.1                                                                                                                                                                                                                                                                                                                                                                                 | E-UTRA - NR FR1 SFTD measurement accuracy under CCA                                                         | Rel-16  | C086d         | UE supporting E-UTRAN, NR RRM measurements in dynamic channel access or in semi-static channel access and SFTD              |                        | 2Rx<br>4Rx |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                                                             |         |               |                                                                                                                             |                        |            |                            |

Table 4.2-13: Applicability of NR-U unlicensed SCell FR1 conformance test cases, ref. TS 38.533 [5]

| Clause        | TC Title                                                                                             | Release | Applicability |                                                                                                                                                                                                                                                | Additional Information | Branch     | Subtest Selection Criteria |
|---------------|------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|               |                                                                                                      |         | Condition     | Comment                                                                                                                                                                                                                                        |                        |            |                            |
| <b>13.1</b>   | <b>Void</b>                                                                                          |         |               |                                                                                                                                                                                                                                                |                        |            |                            |
| <b>13.2</b>   | <b>Signalling Characteristics</b>                                                                    |         |               |                                                                                                                                                                                                                                                |                        |            |                            |
| <b>13.2.2</b> | <b>SCell activation and deactivation delay</b>                                                       |         |               |                                                                                                                                                                                                                                                |                        |            |                            |
| 13.2.2.1      | NR SA FR1 SCell Activation and Deactivation of known SCell under CCA, 160 ms SCell measurement cycle | Rel-16  | C321d         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and 2DL CA                                                                                                                              |                        | 2Rx<br>4Rx |                            |
| 13.2.2.2      | NR SA FR1 SCell Activation and Deactivation of known SCell under CCA, 640 ms SCell measurement cycle | Rel-16  | C321d         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and 2DL CA                                                                                                                              |                        | 2Rx<br>4Rx |                            |
| 13.2.2.3      | NR SA FR1 SCell Activation and Deactivation of unknown SCell under CCA                               | Rel-16  | C321d         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and 2DL CA                                                                                                                              |                        | 2Rx<br>4Rx |                            |
| <b>13.3</b>   | <b>Measurement Procedure</b>                                                                         |         |               |                                                                                                                                                                                                                                                |                        |            |                            |
| <b>13.3.1</b> | <b>Intra-frequency measurements</b>                                                                  |         |               |                                                                                                                                                                                                                                                |                        |            |                            |
| 13.3.1.1      | NR SA FR1 Event-triggered reporting tests on SCC under CCA without gaps under non-DRX                | Rel-16  | C321e         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA                                              |                        | 2Rx<br>4Rx |                            |
| 13.3.1.2      | NR SA FR1 Event-triggered reporting tests on SCC under CCA without gaps under DRX                    | Rel-16  | C321f         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and long DRX cycle                           |                        | 2Rx<br>4Rx |                            |
| 13.3.1.3      | NR SA FR1 Event-triggered reporting tests on SCC under CCA with per-UE gaps under non-DRX            | Rel-16  | C321i         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and Support of BWP adaptation upto2 or upto4 |                        | 2Rx<br>4Rx |                            |

| Clause        | TC Title                                                                                                                  | Release | Applicability |                                                                                                                                                                                                                                                                   | Additional Information | Branch     | Subtest Selection Criteria |
|---------------|---------------------------------------------------------------------------------------------------------------------------|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|               |                                                                                                                           |         | Condition     | Comment                                                                                                                                                                                                                                                           |                        |            |                            |
| 13.3.1.4      | NR SA FR1 Event-triggered reporting tests on SCC under CCA with per-UE gaps under DRX                                     | Rel-16  | C321j         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and long DRX cycle and Support of BWP adaptation upto2 or upto4 |                        | 2Rx<br>4Rx |                            |
| <b>13.3.2</b> | <b>Inter-frequency measurements</b>                                                                                       |         |               |                                                                                                                                                                                                                                                                   |                        |            |                            |
| 13.3.2.3      | NR SA FR1-FR1 Event triggered reporting tests on a carrier with CCA without SSB time index detection when DRX is not used | Rel-16  | C321e         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA                                                                 |                        | 2Rx<br>4Rx |                            |
| 13.3.2.4      | NR SA FR1-FR1 Event triggered reporting tests on a carrier with CCA without SSB time index detection when DRX is used     | Rel-16  | C321f         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and long DRX cycle                                              |                        | 2Rx<br>4Rx |                            |
| 13.3.2.5      | NR SA FR1-FR1 Event triggered reporting tests on a carrier with CCA with SSB time index detection when DRX is not used    | Rel-16  | C321e         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA                                                                 |                        | 2Rx<br>4Rx |                            |
| 13.3.2.6      | NR SA FR1-FR1 Event triggered reporting tests on a carrier with CCA with SSB time index detection when DRX is used        | Rel-16  | C321f         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and long DRX cycle                                              |                        | 2Rx<br>4Rx |                            |
| <b>13.3.3</b> | <b>L1-RSRP measurement for beam reporting for SCell under CCA</b>                                                         |         |               |                                                                                                                                                                                                                                                                   |                        |            |                            |

| Clause        | TC Title                                                                         | Release | Applicability |                                                                                                                                                                                                                                            | Additional Information | Branch     | Subtest Selection Criteria |
|---------------|----------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|               |                                                                                  |         | Condition     | Comment                                                                                                                                                                                                                                    |                        |            |                            |
| 13.3.3.1      | NR SA FR1 SSB based L1-RSRP measurement for SCell under CCA when DRX is not used | Rel-16  | C321e         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA                                          |                        | 2Rx<br>4Rx |                            |
| 13.3.3.2      | NR SA FR1 SSB based L1-RSRP measurement for SCell under CCA when DRX is used     | Rel-16  | C321f         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and long DRX cycle                       |                        | 2Rx<br>4Rx |                            |
| <b>13.4</b>   | <b>Measurement Performance</b>                                                   |         |               |                                                                                                                                                                                                                                            |                        |            |                            |
| <b>13.4.1</b> | <b>SS-RSRP</b>                                                                   |         |               |                                                                                                                                                                                                                                            |                        |            |                            |
| 13.4.1.1      | NR SA FR1 SS-RSRP measurement accuracy on a carrier with CCA                     | Rel-16  | C321e         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA                                          |                        | 2Rx<br>4Rx |                            |
| <b>13.4.2</b> | <b>SS-RSRP</b>                                                                   |         |               |                                                                                                                                                                                                                                            |                        |            |                            |
| 13.4.2.1      | NR SA FR1 SS-RSRQ measurement accuracy on a carrier with CCA                     | Rel-16  | C321e         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA                                          |                        | 2Rx<br>4Rx |                            |
| <b>13.4.3</b> | <b>SS-SINR</b>                                                                   |         |               |                                                                                                                                                                                                                                            |                        |            |                            |
| 13.4.3.1      | NR SA FR1 SS-SINR measurement accuracy on a carrier with CCA                     | Rel-16  | C321g         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and SINR measurements in shared spectrum |                        | 2Rx<br>4Rx |                            |

| Clause        | TC Title                                                                        | Release | Applicability |                                                                                                                                                                                                                                      | Additional Information | Branch     | Subtest Selection Criteria |
|---------------|---------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|               |                                                                                 |         | Condition     | Comment                                                                                                                                                                                                                              |                        |            |                            |
| <b>13.4.4</b> | <b>L1-RSRP measurement for beam reporting with CCA serving cell</b>             |         |               |                                                                                                                                                                                                                                      |                        |            |                            |
| 13.4.4.1      | NR SA FR1 L1-RSRP measurement accuracy for beam reporting on a carrier with CCA | Rel-16  | C321e         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA                                    |                        | 2Rx<br>4Rx |                            |
| <b>13.4.5</b> | <b>RSSI</b>                                                                     |         |               |                                                                                                                                                                                                                                      |                        |            |                            |
| 13.4.5.1      | NR SA FR1 RSSI measurement accuracy on a carrier with CCA                       | Rel-16  | C321h         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and RSSI measurements              |                        | 2Rx<br>4Rx |                            |
| 13.4.5.2      | NR SA FR1-FR1 RSSI measurement accuracy on a carrier with CCA                   | Rel-16  | C321h         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and RSSI measurements              |                        | 2Rx<br>4Rx |                            |
| <b>13.4.6</b> | <b>Channel Occupancy</b>                                                        |         |               |                                                                                                                                                                                                                                      |                        |            |                            |
| 13.4.6.1      | NR SA FR1 channel occupancy measurement accuracy on a carrier with CCA          | Rel-16  | C321h         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and Channel Occupancy measurements |                        | 2Rx<br>4Rx |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                   | Release | Applicability |                                                                                                                                                                                                                                      | Additional Information | Branch     | Subtest Selection Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|----------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                            |         | Condition     | Comment                                                                                                                                                                                                                              |                        |            |                            |
| 13.4.6.2                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1-FR1 channel occupancy measurement accuracy on a carrier with CCA | Rel-16  | C321h         | UE supporting NR CA with a shared spectrum carrier (scenario A) and MIB acquisition on shared spectrum and RRM measurements in dynamic channel access or in semi-static channel access and 2DL CA and Channel Occupancy measurements |                        | 2Rx<br>4Rx |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                            |         |               |                                                                                                                                                                                                                                      |                        |            |                            |

**Table 4.2-14: Applicability of NR-NTN SA FR1 conformance test cases, ref. TS 38.533 [5]**

| Clause        | TC Title                                                                                                             | Release | Applicability |                                                                                                | Additional Information | Branch | Subtest Selection Criteria |
|---------------|----------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|               |                                                                                                                      |         | Condition     | Comment                                                                                        |                        |        |                            |
| <b>14.1</b>   | <b>RRC_IDLE state mobility</b>                                                                                       |         |               |                                                                                                |                        |        |                            |
| 14.1.1        | NR SA FR1 Cell Reselection for Satellite Access                                                                      | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                         |                        |        |                            |
| 14.1.2        | NR SA FR1 Cell Reselection for UE configured with the feature for enhanced requirements for Satellite Access         | Rel-17  | C332l         | UE supporting FDD FR1 satellite access and enhanced requirements for measurements in IDLE mode |                        |        |                            |
| 14.1.3        | NR SA FR1 Time-based Measurement Initiation Cell Reselection for Satellite Access                                    | Rel-17  | C332j         | UE supporting FDD FR1 satellite access and time-based measurement initiation                   |                        |        |                            |
| 14.1.4        | NR SA FR1 Location-based Measurement Initiation Cell Reselection for Satellite Access                                | Rel-17  | C332k         | UE supporting FDD FR1 satellite access and location-based measurement initiation               | NOTE 1                 |        |                            |
| 14.1.5        | NR SA FR1-FR1 Cell Reselection for Satellite Access                                                                  | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                         | NOTE 1                 |        |                            |
| 14.1.6        | NR SA FR1-FR1 Cell Reselection for UE configured with the feature for enhanced requirements for Satellite Access     | Rel-17  | C332l         | UE supporting FDD FR1 satellite access and enhanced requirements for measurements in IDLE mode |                        |        |                            |
| 14.1.7        | NR SA FR1-FR1 Time-based Measurement Initiation Cell Reselection for Satellite Access                                | Rel-17  | C332j         | UE supporting FDD FR1 satellite access and time-based measurement initiation                   |                        |        |                            |
| 14.1.8        | NR SA FR1-FR1 Location-based Measurement Initiation Cell Reselection for Satellite Access                            | Rel-17  | C332k         | UE supporting FDD FR1 satellite access and location-based measurement initiation               | NOTE 1                 |        |                            |
| 14.1.9        | NR SA FR1-FR1 Cell reselection for UE fulfilling low mobility relaxed measurement criterion for Satellite Access     | Rel-17  | C332m         | UE supporting FDD FR1 satellite access and relaxed RRM measurements in IDLE mode               |                        |        |                            |
| 14.1.10       | NR SA FR1-FR1 Cell reselection for UE fulfilling not-at-cell edge relaxed measurement criterion for Satellite Access | Rel-17  | C332m         | UE supporting FDD FR1 satellite access and relaxed RRM measurements in IDLE mode               |                        |        |                            |
| 14.1.11       | NR SA FR1 inter-RAT Cell reselection with NTN Carrier for Satellite Access                                           | Rel-18  | C332x         | UE supporting FDD FR1 satellite access and E-UTRA TN access                                    | NOTE 1                 |        |                            |
| 14.1.12       | NR SA FR1-FR1 Cell re-selection with TN carrier for Satellite Access                                                 | Rel-18  | C332y         | UEs supporting 5GS NR SA FR1 satellite access and TN access                                    | NOTE 1                 |        |                            |
| <b>14.2</b>   | <b>RRC_CONNECTED state mobility</b>                                                                                  |         |               |                                                                                                |                        |        |                            |
| <b>14.2.1</b> | <b>Handover</b>                                                                                                      |         |               |                                                                                                |                        |        |                            |
| 14.2.1.1      | NR SA FR1 Handover for Satellite Access                                                                              | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                         |                        |        |                            |
| 14.2.1.2      | NR SA FR1-FR1 Handover for Satellite Access                                                                          | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                         |                        |        |                            |

| Clause          | TC Title                                                                                   | Release | Applicability |                                                                                                                                               | Additional Information | Branch | Subtest Selection Criteria |
|-----------------|--------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|                 |                                                                                            |         | Condition     | Comment                                                                                                                                       |                        |        |                            |
| 14.2.1.3        | NR SA FR1 Time-based Conditional Handover for NR Satellite Access                          | Rel-17  | C332h         | UE supporting FDD FR1 satellite access and time-based conditional handover                                                                    |                        |        |                            |
| 14.2.1.4        | SA FR1-FR1 SAN time-based conditional Handover for NR satellite access                     | Rel-17  | C332h         | UE supporting FDD FR1 satellite access and time-based conditional handover                                                                    |                        |        |                            |
| 14.2.1.5        | SA FR1 SAN distance-based conditional Handover for NR satellite access                     | Rel-17  | N/A           | Testability issues for configuring UE moving speed for triggering distance based conditional handover                                         | NOTE 1                 |        |                            |
| 14.2.1.6        | SA FR1-FR1 SAN distance-based conditional Handover for NR satellite access                 | Rel-17  | N/A           | Testability issues for configuring UE moving speed for triggering distance based conditional handover                                         | NOTE 1                 |        |                            |
| 14.2.1.8        | NR SA FR1 RACH-less Handover for Satellite Access                                          | Rel-18  | C332q         | UE supporting FDD FR1 satellite access and RACH-less handover with (configured grant or dynamic grant)                                        | NOTE 1                 |        |                            |
| <b>14.2.2</b>   | <b>RRC Connection Mobility Control</b>                                                     |         |               |                                                                                                                                               |                        |        |                            |
| <b>14.2.2.1</b> | <b>RRC Re-establishment for SAN</b>                                                        |         |               |                                                                                                                                               |                        |        |                            |
| 14.2.2.1.1      | NR SA FR1 RRC Re-establishment for Satellite Access                                        | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                        |                        |        |                            |
| 14.2.2.1.2      | NR SA FR1-FR1 RRC Re-establishment for Satellite Access                                    | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                        |                        |        |                            |
| <b>14.2.2.2</b> | <b>Random Access for SAN</b>                                                               |         |               |                                                                                                                                               |                        |        |                            |
| 14.2.2.2.1      | NR SA FR1 4-step contention based random access for Satellite Access                       | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                        |                        |        |                            |
| 14.2.2.2.2      | NR SA FR1 4-step non-contention based random access for Satellite Access                   | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                        |                        |        | Subtest 2: F001            |
| <b>14.2.2.3</b> | <b>RRC Connection Release with Redirection for SAN</b>                                     |         |               |                                                                                                                                               |                        |        |                            |
| 14.2.2.3.1      | NR SA FR1-FR1 RRC connection release with redirection for Satellite Access                 | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                        |                        |        |                            |
| 14.2.2.4        | NR SA FR1 RACH-based Hard Satellite switching with re-synchronization for Satellite Access | Rel-18  | C332n         | UE supporting FDD FR1 satellite access and hard satellite switching with resynchronization or soft satellite switching with resynchronization |                        |        |                            |
| 14.2.2.5        | NR SA FR1 RACH-less Soft Satellite switching with re-synchronization for Satellite Access  | Rel-18  | C332o         | UE supporting FDD FR1 satellite access and soft satellite switching with resynchronization                                                    |                        |        |                            |
| <b>14.3</b>     | <b>Timing for Satellite Access</b>                                                         |         |               |                                                                                                                                               |                        |        |                            |

| Clause        | TC Title                                                                                                                                    | Release | Applicability |                                                                                              | Additional Information | Branch | Subtest Selection Criteria |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|               |                                                                                                                                             |         | Condition     | Comment                                                                                      |                        |        |                            |
| <b>14.3.1</b> | <b>UE transmit timing for Satellite Access</b>                                                                                              |         |               |                                                                                              |                        |        |                            |
| 14.3.1.1      | NR SA FR1 UE transmit timing accuracy for Satellite Access                                                                                  | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                       |                        |        | Subtest 2: F002            |
| <b>14.3.2</b> | <b>UE transmit timing for Satellite Access</b>                                                                                              |         |               |                                                                                              |                        |        |                            |
| 14.3.2.1      | NR SA FR1 timing advance adjustment accuracy for Satellite Access                                                                           | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                       |                        |        |                            |
| <b>14.4</b>   | <b>Signalling characteristics</b>                                                                                                           |         |               |                                                                                              |                        |        |                            |
| <b>14.4.1</b> | <b>Radio Link Monitoring for SAN</b>                                                                                                        |         |               |                                                                                              |                        |        |                            |
| 14.4.1.1      | NR SA FR1 Radio Link Monitoring Out-of-sync for PCell configured with SSB-based RLM RS in non-DRX mode for Satellite Access                 | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                       |                        |        |                            |
| 14.4.1.2      | NR SA FR1 Radio Link Monitoring In-sync for PCell configured with SSB-based RLM RS in non-DRX mode for Satellite Access                     | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                       |                        |        |                            |
| 14.4.1.3      | NR SA FR1 Radio Link Monitoring Out-of-sync for PCell configured with SSB-based RLM RS in DRX mode for Satellite Access                     | Rel-17  | C332a         | UE supporting FDD FR1 satellite access and long DRX cycle                                    |                        |        |                            |
| 14.4.1.4      | NR SA FR1 Radio Link Monitoring In-sync for PCell configured with SSB-based RLM RS in DRX mode for Satellite Access                         | Rel-17  | C332a         | UE supporting FDD FR1 satellite access and long DRX cycle                                    |                        |        |                            |
| 14.4.1.5      | NR SA FR1 Radio Link Monitoring Out-of-sync for PCell configured with CSI-RS-based RLM RS in non-DRX mode for Satellite Access              | Rel-17  | C332b         | UE supporting FDD FR1 satellite access and CSI-RS based RLM                                  |                        |        |                            |
| 14.4.1.6      | NR SA FR1 Radio Link Monitoring In-sync for PCell configured with CSI-RS-based RLM RS in non-DRX mode for Satellite Access                  | Rel-17  | C332b         | UE supporting FDD FR1 satellite access and CSI-RS based RLM                                  |                        |        |                            |
| 14.4.1.7      | NR SA FR1 Radio Link Monitoring Out-of-sync for PCell configured with CSI-RS-based RLM RS in DRX mode for Satellite Access                  | Rel-17  | C332c         | UE supporting FDD FR1 satellite access and CSI-RS based RLM and long DRX cycle               |                        |        |                            |
| 14.4.1.8      | NR SA FR1 Radio Link Monitoring In-sync for PCell configured with CSI-RS-based RLM RS in DRX mode for Satellite Access                      | Rel-17  | C332c         | UE supporting FDD FR1 satellite access and CSI-RS based RLM and long DRX cycle               |                        |        |                            |
| <b>14.4.2</b> | <b>Beam Failure Detection and Link recovery procedures for SAN</b>                                                                          |         |               |                                                                                              |                        |        |                            |
| 14.4.2.1      | NR SA FR1 Beam Failure Detection and Link Recovery Test for PCell configured with SSB-based BFD and LR in non-DRX mode for Satellite Access | Rel-17  | C332d         | UE supporting FDD FR1 satellite access and beam failure and link recovery                    |                        |        |                            |
| 14.4.2.2      | NR SA FR1 Beam Failure Detection and Link Recovery Test for PCell configured with SSB-based BFD and LR in DRX mode for Satellite Access     | Rel-17  | C332e         | UE supporting FDD FR1 satellite access and beam failure and link recovery and long DRX cycle |                        |        |                            |

| Clause          | TC Title                                                                                                                                       | Release | Applicability |                                                                                                                                                           | Additional Information | Branch | Subtest Selection Criteria |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|                 |                                                                                                                                                |         | Condition     | Comment                                                                                                                                                   |                        |        |                            |
| 14.4.2.3        | NR SA FR1 Beam Failure Detection and Link Recovery Test for PCell configured with CSI-RS-based BFD and LR in non-DRX mode for Satellite Access | Rel-17  | C332f         | UE supporting FDD FR1 satellite access and CSI-RS based beam failure and link recovery                                                                    |                        |        |                            |
| 14.4.2.4        | NR SA FR1 Beam Failure Detection and Link Recovery Test for PCell configured with CSI-RS-based BFD and LR in DRX mode for Satellite Access     | Rel-17  | C332g         | UE supporting FDD FR1 satellite access and CSI-RS based beam failure and link recovery and long CDRX cycle                                                |                        |        |                            |
| <b>14.4.3</b>   | <b>Active BWP Switch for SAN</b>                                                                                                               |         |               |                                                                                                                                                           |                        |        |                            |
| 14.4.3.1.1      | NR SA FR1 DCI-based DL active BWP switch with non-DRX for Satellite Access                                                                     | Rel-17  | C332v         | UE supporting FDD FR1 satellite access and (DCI and timer based active BWP switching delay type1 or type2) and (Support of BWP adaptation upto2 or upto4) |                        |        |                            |
| <b>14.4.3.2</b> | <b>RRC-based Active BWP Switch</b>                                                                                                             |         |               |                                                                                                                                                           |                        |        |                            |
| 14.4.3.2.1      | NR SA FR1 RRC-based DL active BWP switch with non-DRX for Satellite Access                                                                     | Rel-17  | C332w         | UE supporting FDD FR1 satellite access and (Support of BWP adaptation upto2 or upto4)                                                                     |                        |        |                            |
| <b>14.4.4</b>   | <b>UE specific CBW change for SAN</b>                                                                                                          |         |               |                                                                                                                                                           |                        |        |                            |
| 14.4.4.1        | NR SA FR1 UE specific CBW change on PCell in non-DRX for Satellite Access                                                                      | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                                    |                        |        |                            |
| <b>14.4.5</b>   | <b>Pathloss reference signal switching delay for SAN</b>                                                                                       |         |               |                                                                                                                                                           |                        |        |                            |
| 14.4.5.1        | NR SA FR1 MAC-CE based pathloss reference signal switch delay for Satellite Access                                                             | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                                    |                        |        |                            |
| <b>14.5</b>     | <b>Measurement procedure</b>                                                                                                                   |         |               |                                                                                                                                                           |                        |        |                            |
| <b>14.5.1</b>   | <b>Intra-frequency Measurements</b>                                                                                                            |         |               |                                                                                                                                                           |                        |        |                            |
| 14.5.1.1        | SA FR1 event triggered reporting tests without gap under non-DRX for NR satellite access                                                       | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                                    |                        |        |                            |
| 14.5.1.2        | SA FR1 Event triggered reporting tests without gap under DRX for NR satellite access                                                           | Rel-17  | C332a         | UE supporting FDD FR1 satellite access and long DRX cycle                                                                                                 |                        |        |                            |
| 14.5.1.3        | SA FR1 event triggered reporting tests without gap under non-DRX with FDD PCell with SSB index reading for NR satellite access                 | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                                                                                    |                        |        |                            |
| 14.5.1.4        | SA FR1 event triggered reporting tests with single measurement gap under non-DRX for satellite access for NR satellite access                  | Rel-17  | C332b         | UE supporting FDD FR1 satellite access and CSI-RS based RLM                                                                                               |                        |        |                            |
| 14.5.1.5        | SA FR1 event triggered reporting tests with FNO concurrent gaps under DRX for satellite access for NR satellite access                         | Rel-17  | C332t         | UE supporting FDD FR1 satellite access, long DRX cycle, 2 parallel measurement gaps and CSI-RS based RLM                                                  |                        |        |                            |

| Clause        | TC Title                                                                                                                                                               | Release | Applicability |                                                                                          | Additional Information | Branch | Subtest Selection Criteria |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|               |                                                                                                                                                                        |         | Condition     | Comment                                                                                  |                        |        |                            |
| 14.5.1.6      | SA FR1 event triggered reporting tests with PPO concurrent gaps under non-DRX with SSB index reading for satellite access for NR satellite access                      | Rel-17  | C332s         | UE supporting FDD FR1 satellite access, 2 parallel measurement gaps and CSI-RS based RLM |                        |        |                            |
| <b>14.5.2</b> | <b>Inter-frequency Measurements</b>                                                                                                                                    |         |               |                                                                                          |                        |        |                            |
| 14.5.2.1      | NR SA FR1-FR1 Event-triggered reporting without SSB time index detection when DRX is not used with single gap for satellite access                                     | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                   |                        |        |                            |
| 14.5.2.2      | NR SA FR1-FR1 Event-triggered reporting without SSB time index detection when DRX is used with single gap for satellite access                                         | Rel-17  | C332a         | UE supporting FDD FR1 satellite access and long DRX cycle                                |                        |        |                            |
| 14.5.2.3      | NR SA FR1-FR1 Event-triggered reporting with SSB time index detection when DRX is not used with single gap for satellite access                                        | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                   |                        |        |                            |
| 14.5.2.4      | NR SA FR1-FR1 Event-triggered reporting without SSB time index detection when DRX is not used with two concurrent fully non-overlapped (FNO) gaps for satellite access | Rel-17  | C332u         | UE supporting FDD FR1 satellite access and 2 parallel measurement gaps                   |                        |        |                            |
| 14.5.2.5      | Void                                                                                                                                                                   |         |               |                                                                                          |                        |        |                            |
| 14.5.2.6      | NR SA FR1-FR1 Event-triggered reporting without SSB time index detection when DRX is not used with two concurrent partial overlapping (PPO) gaps for satellite access  | Rel-17  | C332u         | UE supporting FDD FR1 satellite access and 2 parallel measurement gaps                   |                        |        |                            |
| <b>14.5.3</b> | <b>L1-RSRP measurement for beam reporting for SAN</b>                                                                                                                  |         |               |                                                                                          |                        |        |                            |
| 14.5.3.1      | NR SA FR1 SSB based L1-RSRP measurement when DRX is not used for Satellite Access                                                                                      | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                   | NOTE 1                 |        |                            |
| 14.5.3.2      | NR SA FR1 SSB based L1-RSRP measurement when DRX is used for Satellite Access                                                                                          | Rel-17  | C332a         | UE supporting FDD FR1 satellite access and long DRX cycle                                | NOTE 1                 |        |                            |
| <b>14.6</b>   | <b>Measurement Performance requirements</b>                                                                                                                            |         |               |                                                                                          |                        |        |                            |
| <b>14.6.1</b> | <b>SS-RSRP for SAN</b>                                                                                                                                                 |         |               |                                                                                          |                        |        |                            |
| 14.6.1.1      | NR SA FR1 SS-RSRP measurement accuracy for Satellite Access                                                                                                            | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                   | NOTE 1                 |        |                            |
| 14.6.1.2      | NR SA FR1-FR1 SS-RSRP measurement accuracy for Satellite Access                                                                                                        | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                   | NOTE 1                 |        |                            |
| <b>14.6.2</b> | <b>SS-RSRQ for SAN</b>                                                                                                                                                 |         |               |                                                                                          |                        |        |                            |
| 14.6.2.1      | NR SA FR1 SS-RSRQ measurement accuracy for Satellite Access                                                                                                            | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                   | NOTE 1                 |        |                            |
| 14.6.2.2      | NR SA FR1-FR1 SS-RSRQ measurement accuracy for Satellite Access                                                                                                        | Rel-17  | C332          | UE supporting FDD FR1 satellite access                                                   | NOTE 1                 |        |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                                 | Release | Applicability |                                                                 | Additional Information | Branch | Subtest Selection Criteria |
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|                                                                                                                                                                                                                                                                                                                                                                                          |                                                                          |         | Condition     | Comment                                                         |                        |        |                            |
| <b>14.6.3</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>SS-SINR</b>                                                           |         |               |                                                                 |                        |        |                            |
| 14.6.3.1                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 SS-SINR Measurement Accuracy for Satellite Access              | Rel-17  | C332p         | UE supporting FDD FR1 satellite access and SS-SINR measurements |                        |        |                            |
| 14.6.3.2                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1-FR1 SS-SINR Measurement Accuracy for Satellite Access          | Rel-17  | C332p         | UE supporting FDD FR1 satellite access and SS-SINR measurements |                        |        |                            |
| <b>14.6.4</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>L1-RSRP measurement for beam reporting</b>                            |         |               |                                                                 |                        |        |                            |
| 14.6.4.1                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 SSB based L1-RSRP Measurement Accuracy for Satellite Access    | Rel-17  | C332          | UE supporting FDD FR1 satellite access                          |                        |        |                            |
| 14.6.4.2                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 CSI-RS based L1-RSRP Measurement Accuracy for Satellite Access | Rel-17  | C332          | UE supporting FDD FR1 satellite access                          |                        |        |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                                          |         |               |                                                                 |                        |        |                            |

**Table 4.2-15: Applicability of RRM NR SA FR1 conformance test cases for ATG, ref. TS 38.533 [5]**

| Clause          | TC Title                                                                                                 | Release | Applicability |                                                                                                  | Additional Information | Branch | Subtest Selection Criteria |
|-----------------|----------------------------------------------------------------------------------------------------------|---------|---------------|--------------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|                 |                                                                                                          |         | Condition     | Comment                                                                                          |                        |        |                            |
| <b>19.2</b>     | <b>RRC CONNECTED state mobility</b>                                                                      |         |               |                                                                                                  |                        |        |                            |
| <b>19.2.1</b>   | <b>Handover for ATG</b>                                                                                  |         |               |                                                                                                  |                        |        |                            |
| 19.2.1.1        | Intra-frequency handover from FR1 to FR1; known target cell                                              | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       |                        |        |                            |
| 19.2.1.2        | Inter-frequency handover from FR1 to FR1; unknown target cell                                            | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       |                        |        |                            |
| <b>19.2.2</b>   | <b>Conditional handover</b>                                                                              |         |               |                                                                                                  |                        |        |                            |
| 19.2.2.1        | Intra-frequency distance-based conditional Handover from FR1 to FR1                                      | Rel-18  | C105b         | UEs supporting 5GS FR1 ATG and distance-based conditional handover, event D1 measurement trigger | NOTE 1                 |        |                            |
| 19.2.2.2        | Inter-frequency distance-based conditional Handover from FR1 to FR1                                      | Rel-18  | C105b         | UEs supporting 5GS FR1 ATG and distance-based conditional handover, event D1 measurement trigger | NOTE 1                 |        |                            |
| <b>19.2.3</b>   | <b>RRC Connection Mobility Control</b>                                                                   |         |               |                                                                                                  |                        |        |                            |
| 19.2.3.1.1      | Intra-frequency RRC Re-establishment in FR1 for ATG                                                      | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       | NOTE 1                 |        |                            |
| 19.2.3.1.2      | Inter-frequency RRC Re-establishment in FR1 with unknown target cell without serving cell timing for ATG | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       | NOTE 1                 |        |                            |
| <b>19.2.3.2</b> | <b>Random Access for ATG</b>                                                                             |         |               |                                                                                                  |                        |        |                            |
| 19.2.3.2.1      | NR SA FR1 4-step RA type contention based random access test for ATG                                     | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       | NOTE 1                 |        |                            |
| 19.2.3.2.2      | NR SA FR1 4-step RA type non-contention based random access test for ATG                                 | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       | NOTE 1                 |        | Subtest 2: F001            |
| 19.2.3.2.3      | NR SA FR1 2-step RA type contention based random access test for ATG                                     | Rel-18  | C159a         | UEs supporting 5GS FR1 ATG and 2-step RACH                                                       | NOTE 1                 |        |                            |
| 19.2.3.2.4      | NR SA FR1 2-step RA type non-contention based random access test for ATG                                 | Rel-18  | C159a         | UEs supporting 5GS FR1 ATG and 2-step RACH                                                       | NOTE 1                 |        |                            |
| <b>19.3</b>     | <b>Timing for ATG</b>                                                                                    |         |               |                                                                                                  |                        |        |                            |
| <b>19.3.1</b>   | <b>UE transmit timing</b>                                                                                |         |               |                                                                                                  |                        |        |                            |
| 19.3.1.1        | NR SA FR1 UE Transmit Timing Test for ATG                                                                | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       | NOTE 1                 |        |                            |
| <b>19.3.3</b>   | <b>Timing advance for ATG</b>                                                                            |         |               |                                                                                                  |                        |        |                            |
| 19.3.3.1        | NR SA FR1 timing advance adjustment accuracy for ATG                                                     | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       | NOTE 1                 |        |                            |
| <b>19.4</b>     | <b>Signalling characteristics for ATG</b>                                                                |         |               |                                                                                                  |                        |        |                            |
| <b>19.4.1</b>   | <b>Radio link monitoring for ATG</b>                                                                     |         |               |                                                                                                  |                        |        |                            |
| 19.4.1.1        | Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with SSB-based RLM RS in non-DRX mode    | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                       | NOTE 1                 |        |                            |

| Clause          | TC Title                                                                                              | Release | Applicability |                                                                                                                                                     | Additional Information | Branch | Subtest Selection Criteria |
|-----------------|-------------------------------------------------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|                 |                                                                                                       |         | Condition     | Comment                                                                                                                                             |                        |        |                            |
| 19.4.1.2        | Radio Link Monitoring In-sync Test for FR1 PCell configured with SSB-based RLM RS in non-DRX mode     | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                                                          | NOTE 1                 |        |                            |
| 19.4.1.3        | Radio Link Monitoring Out-of-sync Test for FR1 PCell configured with CSI-RS-based RLM in non-DRX mode | Rel-18  | C037c         | UEs supporting 5GS NR SA FR1 ATG and CSI-RS-based RLM                                                                                               | NOTE 1                 |        |                            |
| 19.4.1.4        | Radio Link Monitoring In-sync Test for FR1 PCell configured with CSI-RS-based RLM in non-DRX mode     | Rel-18  | C037c         | UEs supporting 5GS NR SA FR1 ATG and CSI-RS-based RLM                                                                                               | NOTE 1                 |        |                            |
| <b>19.4.3</b>   | <b>Active BWP switch for ATG</b>                                                                      |         |               |                                                                                                                                                     |                        |        |                            |
| <b>19.4.3.1</b> | <b>DCI-based and timer-based active BWP switch for ATG</b>                                            |         |               |                                                                                                                                                     |                        |        |                            |
| 19.4.3.1.1      | NR SA FR1 DCI-based DL active BWP switch in non-DRX for ATG                                           | Rel-18  | C066f         | UEs supporting 5GS NR SA FR1 ATG and (DCI and timer based active BWP switching delay type1 or type2) and (Support of BWP adaptation upto2 or upto4) | NOTE 1                 |        |                            |
| <b>19.4.3.2</b> | <b>RRC-based Active BWP Switch for ATG</b>                                                            |         |               |                                                                                                                                                     |                        |        |                            |
| 19.4.3.2.1      | NR SA FR1 RRC-based DL active BWP switch in non-DRX for ATG                                           | Rel-18  | C066g         | UEs supporting 5GS NR SA FR1 ATG and (Support of BWP adaptation upto2 or upto4)                                                                     | NOTE 1                 |        |                            |
| <b>19.4.4</b>   | <b>UE specific CBW change for ATG</b>                                                                 |         |               |                                                                                                                                                     |                        |        |                            |
| 19.4.4.1        | NR SA FR1 UE specific CBW change on PCell in non-DRX for ATG                                          | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                                                          | NOTE 1                 |        |                            |
| <b>19.4.5</b>   | <b>Pathloss reference signal switching delay for ATG</b>                                              |         |               |                                                                                                                                                     |                        |        |                            |
| 19.4.5.1        | NR SA FR1 MAC-CE based pathloss reference signal switch delay for ATG                                 | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                                                          | NOTE 1                 |        |                            |
| <b>19.5</b>     | <b>Measurement procedure for ATG</b>                                                                  |         |               |                                                                                                                                                     |                        |        |                            |
| <b>19.5.1</b>   | <b>Intra-frequency measurements</b>                                                                   |         |               |                                                                                                                                                     |                        |        |                            |
| 19.5.1.1        | SA FR1 event triggered reporting tests without gap without SSB index reading under non-DRX            | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                                                          | NOTE 1                 |        |                            |
| 19.5.1.2        | SA FR1 event triggered reporting tests with per-UE gaps under non-DRX                                 | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                                                          | NOTE 1                 |        |                            |
| 19.5.1.3        | SA FR1 event triggered reporting tests without gap under non-DRX with SSB index reading               | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                                                          | NOTE 1                 |        |                            |
| 19.5.1.4        | SA FR1 event triggered reporting tests with per-UE gaps under non-DRX with SSB index reading          | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                                                          | NOTE 1                 |        |                            |
| <b>19.5.2</b>   | <b>Intra-frequency measurements</b>                                                                   |         |               |                                                                                                                                                     |                        |        |                            |

| Clause          | TC Title                                                                                               | Release | Applicability |                                                                                                            | Additional Information | Branch | Subtest Selection Criteria |
|-----------------|--------------------------------------------------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------------------------------------------|------------------------|--------|----------------------------|
|                 |                                                                                                        |         | Condition     | Comment                                                                                                    |                        |        |                            |
| 19.5.2.1        | SA FR1-FR1 event triggered reporting tests without SSB time index detection when DRX is used           | Rel-18  | FFS           | FFS                                                                                                        | NOTE 1                 |        |                            |
| 19.5.2.2        | SA FR1-FR1 event triggered reporting tests with SSB time index detection when DRX is not used          | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                 | NOTE 1                 |        |                            |
| 19.5.2.3        | SA FR1-FR1 event triggered reporting tests without gap when DRX is not used                            | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                 | NOTE 1                 |        |                            |
| <b>19.5.3</b>   | <b>L1-RSRP measurement for beam reporting for ATG</b>                                                  |         |               |                                                                                                            |                        |        |                            |
| 19.5.3.1        | NR SA FR1 SSB based L1-RSRP measurement in non-DRX for ATG                                             | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                 | NOTE 1                 |        |                            |
| 19.5.3.2        | NR SA FR1 CSI-RS based L1-RSRP measurement in non-DRX for ATG                                          | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                 | NOTE 1                 |        |                            |
| <b>19.5.4</b>   | <b>L1-SINR measurement for beam reporting for ATG</b>                                                  |         |               |                                                                                                            |                        |        |                            |
| 19.5.4.1        | NR SA FR1 L1-SINR measurement with CSI-RS based CMR and no dedicated IMR configured in non-DRX for ATG | Rel-18  | C132a         | UEs supporting 5GS FR1 ATG and L1-SINR-measurement based on CSI-RS as CMR without dedicated IMR configured | NOTE 1                 |        |                            |
| 19.5.4.2        | NR SA FR1 L1-SINR measurement with SSB based CMR and dedicated IMR in non-DRX for ATG                  | Rel-18  | C133a         | UEs supporting 5GS FR1 ATG and L1-SINR-measurement based on SSB as CMR and dedicated CSI-IM as IMR         | NOTE 1                 |        |                            |
| 19.5.4.3        | NR SA FR1 L1-SINR measurement with CSI-RS based CMR and dedicated IMR in non-DRX for ATG               | Rel-18  | C134a         | UEs supporting 5GS FR1 ATG and L1-SINR-measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR      | NOTE 1                 |        |                            |
| <b>19.5.5</b>   | <b>NR measurements with autonomous gaps for ATG</b>                                                    |         |               |                                                                                                            |                        |        |                            |
| 19.5.5.1        | NR SA FR1 CGI identification of NR neighbor cell for ATG                                               | Rel-18  | C302a         | UEs supporting 5GS FR1 ATG and NR CGI reading using autonomous gap                                         | NOTE 1                 |        |                            |
| <b>19.6</b>     | <b>Measurement Performance requirements for ATG</b>                                                    |         |               |                                                                                                            |                        |        |                            |
| <b>19.6.1</b>   | <b>SS-RSRP for ATG</b>                                                                                 |         |               |                                                                                                            |                        |        |                            |
| <b>19.6.1.1</b> | <b>Intra-frequency measurements for ATG</b>                                                            |         |               |                                                                                                            |                        |        |                            |
| 19.6.1.1.1      | NR SA FR1 SS-RSRP absolute measurement accuracy for ATG                                                | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                 |                        |        |                            |
| 19.6.1.1.2      | NR SA FR1 SS-RSRP relative measurement accuracy for ATG                                                | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                                                                                 |                        |        |                            |

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|                 |                                                                               |         | Condition     | Comment                                     |                        |        |                            |
| <b>19.6.1.2</b> | <b>Inter-frequency measurements for ATG</b>                                   |         |               |                                             |                        |        |                            |
| 19.6.1.2.1      | NR SA FR1-FR1 SS-RSRP absolute measurement accuracy for ATG                   | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| 19.6.1.2.2      | NR SA FR1-FR1 SS-RSRP relative measurement accuracy for ATG                   | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| <b>19.6.2</b>   | <b>SS-RSRQ for ATG</b>                                                        |         |               |                                             |                        |        |                            |
| 19.6.2.1        | NR SA FR1 SS-RSRQ absolute measurement accuracy for ATG                       | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| <b>19.6.2.2</b> | <b>Inter-frequency measurements for ATG</b>                                   |         |               |                                             |                        |        |                            |
| 19.6.2.2.1      | NR SA FR1-FR1 SS-RSRQ absolute measurement accuracy for ATG                   | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| 19.6.2.2.2      | NR SA FR1-FR1 SS-RSRQ relative measurement accuracy for ATG                   | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| <b>19.6.3</b>   | <b>SS-SINR for ATG</b>                                                        |         |               |                                             |                        |        |                            |
| 19.6.3.1        | NR SA FR1 SS-SINR absolute measurement accuracy for ATG                       | Rel-18  | C034a         | UEs supporting 5GS FR1 ATG and SS-SINR-meas |                        |        |                            |
| <b>19.6.3.2</b> | <b>Inter-frequency measurements for ATG</b>                                   |         |               |                                             |                        |        |                            |
| 19.6.3.2.1      | NR SA FR1-FR1 SS-SINR absolute measurement accuracy for ATG                   | Rel-18  | C034a         | UEs supporting 5GS FR1 ATG and SS-SINR-meas |                        |        |                            |
| 19.6.3.2.2      | NR SA FR1-FR1 SS-SINR relative measurement accuracy for ATG                   | Rel-18  | C034a         | UEs supporting 5GS FR1 ATG and SS-SINR-meas |                        |        |                            |
| <b>19.6.4</b>   | <b>L1-RSRP measurement for beam reporting for ATG</b>                         |         |               |                                             |                        |        |                            |
| <b>19.6.4.1</b> | <b>SSB based L1-RSRP measurements for ATG</b>                                 |         |               |                                             |                        |        |                            |
| 19.6.4.1.1      | NR SA FR1 SSB based L1-RSRP absolute measurement accuracy for ATG             | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| 19.6.4.1.2      | NR SA FR1 SSB based L1-RSRP relative measurement accuracy for ATG             | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| <b>19.6.4.2</b> | <b>CSI-RS based L1-RSRP measurements for ATG</b>                              |         |               |                                             |                        |        |                            |
| 19.6.4.2.1      | NR SA FR1 CSI-RS based L1-RSRP absolute measurement accuracy for ATG          | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| 19.6.4.2.2      | NR SA FR1 CSI-RS based L1-RSRP relative measurement accuracy for ATG          | Rel-18  | C001n         | UEs supporting 5GS FR1 ATG                  |                        |        |                            |
| <b>19.6.5</b>   | <b>L1-SINR measurement for beam reporting for ATG</b>                         |         |               |                                             |                        |        |                            |
| <b>19.6.5.1</b> | <b>L1-SINR measurement with CSI-RS based CMR and no dedicated IMR for ATG</b> |         |               |                                             |                        |        |                            |

| Clause          | TC Title                                                                                           | Release | Applicability |                                                                                                            | Additional Information | Branch | Subtest Selection Criteria |
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|                 |                                                                                                    |         | Condition     | Comment                                                                                                    |                        |        |                            |
| 19.6.5.1.1      | NR SA FR1 L1-SINR absolute measurement accuracy with CSI-RS based CMR and no dedicated IMR for ATG | Rel-18  | C132a         | UEs supporting 5GS FR1 ATG and L1-SINR-measurement based on CSI-RS as CMR without dedicated IMR configured |                        |        |                            |
| 19.6.5.1.2      | NR SA FR1 L1-SINR relative measurement accuracy with CSI-RS based CMR and no dedicated IMR for ATG | Rel-18  | C132a         | UEs supporting 5GS FR1 ATG and L1-SINR-measurement based on CSI-RS as CMR without dedicated IMR configured |                        |        |                            |
| 19.6.5.2        | NR SA FR1 L1-SINR absolute measurement accuracy with SSB based CMR and dedicated IMR for ATG       | Rel-18  | C133a         | UEs supporting 5GS FR1 ATG and L1-SINR-measurement based on SSB as CMR and dedicated CSI-IM as IMR         |                        |        |                            |
| <b>19.6.5.3</b> | <b>L1-SINR measurement with CSI-RS based CMR and dedicated IMR for ATG</b>                         |         |               |                                                                                                            |                        |        |                            |
| 19.6.5.3.1      | NR SA FR1 L1-SINR absolute measurement accuracy with CSI-RS based CMR and dedicated IMR for ATG    | Rel-18  | C134a         | UEs supporting 5GS FR1 ATG and L1-SINR-measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR      |                        |        |                            |
| 19.6.5.3.2      | NR SA FR1 L1-SINR relative measurement accuracy with CSI-RS based CMR and dedicated IMR for ATG    | Rel-18  | C134a         | UEs supporting 5GS FR1 ATG and L1-SINR-measurement based on CSI-RS as CMR and dedicated CSI-IM as IMR      |                        |        |                            |
| <b>19.6.6</b>   | <b>CSI-RSRP for ATG</b>                                                                            |         |               |                                                                                                            |                        |        |                            |
| <b>19.6.6.1</b> | <b>Intra-frequency measurements for ATG</b>                                                        |         |               |                                                                                                            |                        |        |                            |
| 19.6.6.1.1      | NR SA FR1 CSI-RSRP absolute measurement accuracy for ATG                                           | Rel-18  | C393          | UEs supporting 5GS FR1 ATG and CSI-RS based RSRP and RSRQ measurements                                     | NOTE 1                 |        |                            |
| 19.6.6.1.2      | NR SA FR1 CSI-RSRP relative measurement accuracy for ATG                                           | Rel-18  | C393          | UEs supporting 5GS FR1 ATG and CSI-RS based RSRP and RSRQ measurements                                     | NOTE 1                 |        |                            |
| <b>19.6.6.2</b> | <b>Inter-frequency measurements for ATG</b>                                                        |         |               |                                                                                                            |                        |        |                            |
| 19.6.6.2.1      | NR SA FR1-FR1 CSI-RSRP absolute measurement accuracy for ATG                                       | Rel-18  | C393          | UEs supporting 5GS FR1 ATG and CSI-RS based RSRP and RSRQ measurements                                     | NOTE 1                 |        |                            |
| 19.6.6.2.2      | NR SA FR1-FR1 CSI-RSRP relative measurement accuracy for ATG                                       | Rel-18  | C393          | UEs supporting 5GS FR1 ATG and CSI-RS based RSRP and RSRQ measurements                                     | NOTE 1                 |        |                            |
| <b>19.6.7</b>   | <b>CSI-RSRQ for ATG</b>                                                                            |         |               |                                                                                                            |                        |        |                            |
| 19.6.7.1        | NR SA FR1 CSI-RSRQ absolute measurement accuracy for ATG                                           | Rel-18  | C393          | UEs supporting 5GS FR1 ATG and CSI-RS based RSRP and RSRQ measurements                                     | NOTE 1                 |        |                            |

| Clause                                                                                                                                                                                                                                                                                                                                                                                   | TC Title                                                     | Release | Applicability |                                                                        | Additional Information | Branch | Subtest Selection Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------|---------------|------------------------------------------------------------------------|------------------------|--------|----------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                          |                                                              |         | Condition     | Comment                                                                |                        |        |                            |
| <b>19.6.7.2</b>                                                                                                                                                                                                                                                                                                                                                                          | <b>Inter-frequency measurements for ATG</b>                  |         |               |                                                                        |                        |        |                            |
| 19.6.7.2.1                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1-FR1 CSI-RSRQ absolute measurement accuracy for ATG | Rel-18  | C393          | UEs supporting 5GS FR1 ATG and CSI-RS based RSRP and RSRQ measurements | NOTE 1                 |        |                            |
| 19.6.7.2.2                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1-FR1 CSI-RSRQ relative measurement accuracy for ATG | Rel-18  | C393          | UEs supporting 5GS FR1 ATG and CSI-RS based RSRP and RSRQ measurements | NOTE 1                 |        |                            |
| <b>19.6.8</b>                                                                                                                                                                                                                                                                                                                                                                            | <b>CSI-SINR for ATG</b>                                      |         |               |                                                                        |                        |        |                            |
| 19.6.8.1                                                                                                                                                                                                                                                                                                                                                                                 | NR SA FR1 CSI-SINR absolute measurement accuracy for ATG     | Rel-18  | C394          | UEs supporting 5GS FR1 ATG and CSI-RS based SINR measurements          | NOTE 1                 |        |                            |
| <b>19.6.8.2</b>                                                                                                                                                                                                                                                                                                                                                                          | <b>Inter-frequency measurements for ATG</b>                  |         |               |                                                                        |                        |        |                            |
| 19.6.8.2.1                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1-FR1 CSI-SINR absolute measurement accuracy for ATG | Rel-18  | C394          | UEs supporting 5GS FR1 ATG and CSI-RS based SINR measurements          | NOTE 1                 |        |                            |
| 19.6.8.2.2                                                                                                                                                                                                                                                                                                                                                                               | NR SA FR1-FR1 CSI-SINR relative measurement accuracy for ATG | Rel-18  | C394          | UEs supporting 5GS FR1 ATG and CSI-RS based SINR measurements          | NOTE 1                 |        |                            |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. |                                                              |         |               |                                                                        |                        |        |                            |

## 4.3 RF conformance test cases for Satellite Access

NOTE: To determine applicability of a test case, supported CBW and SCS in the *RF-Parameters* IE (see TS 38.331 [11]) which conveys RF related capabilities for NR operation is taken into account.

### 4.3.1 FR1 standalone conformance test cases for Satellite Access

**Table 4.3.1-1: Applicability of RF SA FR1 conformance test cases, ref. TS 38.521-5 [12]**

| Clause   | TC Title                                                       | Release | Applicability |                                                                                               | Tested Bands/CA-Configurations Selection | Branch      | Additional Information |
|----------|----------------------------------------------------------------|---------|---------------|-----------------------------------------------------------------------------------------------|------------------------------------------|-------------|------------------------|
|          |                                                                |         | Condition     | Comment                                                                                       |                                          |             |                        |
| <b>6</b> | <b>Transmitter Characteristics</b>                             |         |               |                                                                                               |                                          |             |                        |
| 6.2.1    | UE maximum output power                                        | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.2.2    | Maximum Power Reduction (MPR)                                  | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.2.3    | UE additional maximum output power reduction                   | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.2.4    | Configured transmitted power                                   | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.3.1    | Minimum output power                                           | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.3.3    | Tx ON/OFF Time Mask                                            | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.3.4.2  | Absolute power tolerance                                       | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.3.4.3  | Relative power tolerance                                       | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.3.4.4  | Aggregate power tolerance                                      | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.4.1_1  | Frequency error with GSO ephemeris                             | Rel-17  | C001p         | UEs supporting 5GS FDD FR1 satellite access and only GSO or both GSO and NGSO                 | D027                                     |             |                        |
| 6.4.1_2  | Frequency error with NGSO ephemeris                            | Rel-17  | C001q         | UEs supporting 5GS FDD FR1 satellite access and only NGSO or both GSO and NGSO                | D027                                     |             |                        |
| 6.4.2.1  | Error Vector Magnitude                                         | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.4.2.1a | Error Vector Magnitude including symbols with transient period | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.4.2.2  | Carrier Leakage                                                | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.4.2.3  | In-band emissions                                              | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.4.2.4  | EVM equalizer spectrum flatness                                | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access                                                   | D027                                     | GSO<br>NGSO |                        |
| 6.4.2.5  | EVM equalizer spectrum flatness for Pi/2 BPSK                  | Rel-17  | C111a         | UEs supporting 5GS FDD FR1 satellite access and pi/2-BPSK modulation scheme and low PAPR DMRS | D027                                     |             |                        |

| Clause                                                                                                                                                                                                                                                                                                                      | TC Title                                                                  | Release | Applicability |                                             | Tested Bands/CA-Configurations Selection | Branch      | Additional Information |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------|---------------|---------------------------------------------|------------------------------------------|-------------|------------------------|
|                                                                                                                                                                                                                                                                                                                             |                                                                           |         | Condition     | Comment                                     |                                          |             |                        |
| 6.5.1                                                                                                                                                                                                                                                                                                                       | Occupied bandwidth                                                        | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 6.5.2.2                                                                                                                                                                                                                                                                                                                     | Spectrum Emissions Mask                                                   | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 6.5.2.4                                                                                                                                                                                                                                                                                                                     | Adjacent Channel Leakage Ratio                                            | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 6.5.3.1                                                                                                                                                                                                                                                                                                                     | General Spurious                                                          | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 6.5.3.2                                                                                                                                                                                                                                                                                                                     | Spurious emissions for UE co-existence                                    | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO | NOTE 1                 |
| 6.5.3.3                                                                                                                                                                                                                                                                                                                     | Additional Spurious emissions                                             | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 6.5.4                                                                                                                                                                                                                                                                                                                       | Transmit intermodulation                                                  | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| <b>7</b>                                                                                                                                                                                                                                                                                                                    | <b>Receiver Characteristics</b>                                           |         |               |                                             |                                          |             |                        |
| 7.3.2                                                                                                                                                                                                                                                                                                                       | Reference sensitivity power level                                         | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 7.3.2_1                                                                                                                                                                                                                                                                                                                     | Reference sensitivity power level for flexible Tx-Rx frequency separation | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO | NOTE 1                 |
| 7.4                                                                                                                                                                                                                                                                                                                         | Maximum input level                                                       | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 7.5                                                                                                                                                                                                                                                                                                                         | Adjacent channel selectivity                                              | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 7.6.2                                                                                                                                                                                                                                                                                                                       | In-band blocking                                                          | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 7.6.3                                                                                                                                                                                                                                                                                                                       | Out of Band blocking                                                      | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 7.6.4                                                                                                                                                                                                                                                                                                                       | Narrow band blocking                                                      | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 7.7                                                                                                                                                                                                                                                                                                                         | Spurious response                                                         | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 7.8.2                                                                                                                                                                                                                                                                                                                       | Wide band Intermodulation                                                 | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| 7.9                                                                                                                                                                                                                                                                                                                         | Spurious emission                                                         | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                                     | GSO<br>NGSO |                        |
| Note 1: The test case is incomplete for any band but has basic test configurations already. NOTE 1 can be removed only when the test case is complete for at least one band for at least one feature included in the test case. Detailed completion status can be found in the corresponding test case section in 38.521-5. |                                                                           |         |               |                                             |                                          |             |                        |

## 4.3.2 Performance conformance test cases for Satellite Access

**Table 4.3.2-1: Applicability of performance test cases, ref. TS 38.521-5 [12]**

| Clause                                                                                                                                                                                                                                                                                                                      | TC Title                                              | Release | Applicability |                                             | Tested Bands Selection | Additional Information | Subtest Selection Criteria             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------|---------------|---------------------------------------------|------------------------|------------------------|----------------------------------------|
|                                                                                                                                                                                                                                                                                                                             |                                                       |         | Condition     | Comment                                     |                        |                        |                                        |
| <b>8</b>                                                                                                                                                                                                                                                                                                                    | <b>Conducted performance requirements</b>             |         |               |                                             |                        |                        |                                        |
| <b>8.2</b>                                                                                                                                                                                                                                                                                                                  | <b>Demodulation performance requirements</b>          |         |               |                                             |                        |                        |                                        |
| 8.2.1.2.2.1.1_1                                                                                                                                                                                                                                                                                                             | 2Rx FDD FR1 PDSCH Mapping Type A for Satellite Access | Rel-17  | C001o         | UEs supporting 5GS FDD FR1 satellite access | D027                   |                        | Subtest 1-3: F048<br>Subtest 1-4: F049 |
| Note 1: The test case is incomplete for any band but has basic test configurations already. NOTE 1 can be removed only when the test case is complete for at least one band for at least one feature included in the test case. Detailed completion status can be found in the corresponding test case section in 38.521-5. |                                                       |         |               |                                             |                        |                        |                                        |

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## Annex A (informative): Change history

| Change history |                    |           |      |      |     |                                                                                                                                                                                                                                                    |             |
|----------------|--------------------|-----------|------|------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Date           | Meeting            | TDoc      | CR   | R ev | Cat | Subject/Comment                                                                                                                                                                                                                                    | New version |
| 2017-08        | RAN5#76            | R5-173911 | -    | -    | -   | Draft skeleton                                                                                                                                                                                                                                     | 0.0.1       |
| 2018-01        | RAN5#1-5G-NR Adhoc | R5-180107 | -    | -    | -   | Updated after <a href="#">RAN5#1-5G-NR Adhoc</a> :<br>- Foreword, scope, references, definitions, symbols and abbreviations, recommended test case applicability updated<br>- clause 4.1.1, 4.1.2, 4.1.3 and 4.1.4 added<br>- change history added | 0.1.0       |
| 2018-03        | RAN5 #78           | R5-181687 | -    | -    | -   | TP for Clause 4.1.1 Range 1 standalone conformance test cases                                                                                                                                                                                      | 0.2.0       |
| 2018-03        | RAN5 #78           | R5-181688 | -    | -    | -   | TP for Clause 4.1.2 Range 2 standalone conformance test cases                                                                                                                                                                                      | 0.2.0       |
| 2018-03        | RAN5 #78           | R5-181689 | -    | -    | -   | TP for Clause 4.1.3 NR interworking between NR range1 and NR range2 and between NR and LTE conformance test cases                                                                                                                                  | 0.2.0       |
| 2018-04        | RAN5#2-5G-NR Adhoc | R5-182013 | -    | -    | -   | TP for Clause 3 Definitions, symbols and abbreviations                                                                                                                                                                                             | 0.3.0       |
| 2018-04        | RAN5#2-5G-NR Adhoc | R5-182047 | -    | -    | -   | TP for Clause 4 Recommended test case applicability                                                                                                                                                                                                | 0.3.0       |
| 2018-08        | RAN5#80            | R5-185209 | -    | -    | -   | TP for Clause 4.1.1 of TS 38.522                                                                                                                                                                                                                   | 1.0.1       |
| 2018-08        | RAN5#80            | R5-185210 | -    | -    | -   | TP for Clause 4.1.2 of TS 38.522                                                                                                                                                                                                                   | 1.0.1       |
| 2018-08        | RAN5#80            | R5-185211 | -    | -    | -   | TP for Clause 4.1.3 of TS 38.522                                                                                                                                                                                                                   | 1.0.1       |
| 2018-09        | RAN#81             | -         | -    | -    | -   | raised to v15.0.0 with editorial changes only                                                                                                                                                                                                      | 15.0.0      |
| 2018-12        | RAN#82             | R5-186501 | 0013 | -    | F   | Applicability rules implementation in 38.522                                                                                                                                                                                                       | 15.1.0      |
| 2018-12        | RAN#82             | R5-188223 | 0015 | -    | F   | Applicability for RRM NR tests                                                                                                                                                                                                                     | 15.1.0      |
| 2018-12        | RAN#82             | R5-187566 | 0016 | -    | F   | Update note in section 4.1 to include CBW and SCS in RF test applicability                                                                                                                                                                         | 15.1.0      |
| 2018-12        | RAN#82             | R5-187849 | 0014 | 1    | F   | Adding applicability for new 38.521-1 CA TCs                                                                                                                                                                                                       | 15.1.0      |
| 2018-12        | RAN#82             | R5-187881 | 0008 | 1    | F   | Update Clause 1 Scope of TS 38.522                                                                                                                                                                                                                 | 15.1.0      |
| 2018-12        | RAN#82             | R5-187884 | 0011 | 1    | F   | TP for Clause 4.1.3 of TS 38.522                                                                                                                                                                                                                   | 15.1.0      |
| 2018-12        | RAN#82             | R5-187922 | 0017 | -    | F   | Removing FR2 test case 7.4 from TS 38.522 due to testability issue                                                                                                                                                                                 | 15.1.0      |
| 2019-01        | RAN#82             | R5-187882 | 0009 | 1    | F   | Update Clause 3 of TS 38.522                                                                                                                                                                                                                       | 15.1.1      |
| 2019-01        | RAN#82             | R5-187883 | 0010 | 1    | F   | TP for Clause 4.1.1 of TS 38.522                                                                                                                                                                                                                   | 15.1.1      |
| 2019-01        | RAN#82             | R5-187885 | 0012 | 1    | F   | TP for Clause 4.1.3 of TS 38.522                                                                                                                                                                                                                   | 15.1.1      |
| 2019-03        | RAN#83             | R5-191722 | 0021 | -    | F   | addition of applicability for BFD and measurement                                                                                                                                                                                                  | 15.2.0      |
| 2019-03        | RAN#83             | R5-192507 | 0020 | 1    | F   | TP for TS 38.522                                                                                                                                                                                                                                   | 15.2.0      |
| 2019-03        | RAN#83             | R5-192508 | 0022 | 1    | F   | Addition of RRM Test Cases Applicability                                                                                                                                                                                                           | 15.2.0      |
| 2019-06        | RAN#84             | R5-195444 | 0027 | 1    | F   | TP for TS 38.522                                                                                                                                                                                                                                   | 15.3.0      |
| 2019-06        | RAN#84             | -         | -    | -    | -   | Administrative release upgrade to match the release of 3GPP TS 38.508-1 and TS 38.521-1 which were upgraded at RAN#84 to Rel-16 due to Rel-16 relevant CR(s)                                                                                       | 16.0.0      |
| 2019-06        | RAN#84             | -         | -    | -    | -   | Addition of missing Table part of R5-195444 and part of a note.                                                                                                                                                                                    | 16.0.1      |
| 2019-06        | RAN#84             | -         | -    | -    | -   | Formatted big tables to landscape                                                                                                                                                                                                                  | 16.0.2      |
| 2019-09        | RAN#85             | R5-197650 | 0030 | 1    | -   | TP for TS 38.522                                                                                                                                                                                                                                   | 16.1.0      |
| 2019-09        | RAN#85             | R5-197650 | 0030 | 1    | -   | Added missing changes of R5-197650                                                                                                                                                                                                                 | 16.1.1      |
| 2019-12        | RAN#86             | R5-199089 | 0032 | 2    | -   | TP for TS 38.522                                                                                                                                                                                                                                   | 16.2.0      |
| 2020-03        | RAN#87             | R5-201036 | 0033 | 1    | F   | TP and format updated for TS 38.522                                                                                                                                                                                                                | 16.3.0      |
| 2020-06        | RAN#88             | R5-202958 | 0040 | 1    | F   | R16 TDD ENDC PC2 TP for TS 38.522                                                                                                                                                                                                                  | 16.4.0      |
| 2020-06        | RAN#88             | R5-203114 | 0037 | 2    | F   | TP updated to applicability table                                                                                                                                                                                                                  | 16.4.0      |
| 2020-09        | RAN#89             | R5-204098 | 0046 | -    | F   | Correct applicability EN-DC event-triggered inter-frequency tests                                                                                                                                                                                  | 16.5.0      |
| 2020-09        | RAN#89             | R5-204099 | 0047 | -    | F   | Correct applicability NR SA event-triggered inter-frequency tests                                                                                                                                                                                  | 16.5.0      |
| 2020-09        | RAN#89             | R5-204939 | 0043 | 1    | F   | TP for TS 38.522                                                                                                                                                                                                                                   | 16.5.0      |
| 2020-09        | RAN#89             | R5-204940 | 0044 | 1    | F   | Correction of 38.522                                                                                                                                                                                                                               | 16.5.0      |
| 2020-12        | RAN#90             | R5-206905 | 0051 | 1    | F   | Update to applicability spec for 5G test cases                                                                                                                                                                                                     | 16.6.0      |
| 2021-03        | RAN#91             | R5-210506 | 0055 | -    | F   | Correction of applicability definitions for long DRX cycle related test cases                                                                                                                                                                      | 16.7.0      |
| 2021-03        | RAN#91             | R5-210792 | 0058 | -    | F   | Adding the test applicability of RF test cases for eMIMO                                                                                                                                                                                           | 16.7.0      |
| 2021-03        | RAN#91             | R5-211158 | 0060 | -    | F   | Addition of applicability new test case 6.3.2.1.3 in TS 38.521-4                                                                                                                                                                                   | 16.7.0      |

|         |        |           |      |   |   |                                                                                                                                                                    |        |
|---------|--------|-----------|------|---|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 2021-03 | RAN#91 | R5-211159 | 0061 | - | F | Addition of applicability new test case 6.3.3.1.3 in TS 38.521-4                                                                                                   | 16.7.0 |
| 2021-03 | RAN#91 | R5-211610 | 0067 | - | F | Applicability of Error Vector Magnitude for V2X for non-concurrent operation                                                                                       | 16.7.0 |
| 2021-03 | RAN#91 | R5-211720 | 0054 | 1 | F | Correction of applicability definitions for PUSCH HalfPi BPSK related test cases                                                                                   | 16.7.0 |
| 2021-03 | RAN#91 | R5-211853 | 0059 | 1 | F | Update to applicability spec for 5G test cases                                                                                                                     | 16.7.0 |
| 2021-03 | RAN#91 | R5-211913 | 0057 | 1 | F | Adding test applicability for switching test case                                                                                                                  | 16.7.0 |
| 2021-03 | RAN#91 | R5-211917 | 0066 | 1 | F | Addition of new RRM test cases to the applicability table in 4.2                                                                                                   | 16.7.0 |
| 2021-03 | RAN#91 | R5-211918 | 0068 | 1 | F | Applicability for RRM NR HST test case 6.1.1.7 and 6.6.1.7                                                                                                         | 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 | R5-212078 | 0069 | - | F | Addition of applicability for new test case 6.3.2.1.4 and 6.3.3.1.4 in TS 38.521-4                                                                                 | 17.1.0 |
| 2021-06 | RAN#92 | R5-212932 | 0075 | - | F | Addition of test applicability for V2X RF test cases                                                                                                               | 17.1.0 |
| 2021-06 | RAN#92 | R5-212939 | 0076 | - | F | Adding test applicability for eMIMO demod test cases                                                                                                               | 17.1.0 |
| 2021-06 | RAN#92 | R5-212948 | 0077 | - | F | Adding test applicability for URLLC demod test cases                                                                                                               | 17.1.0 |
| 2021-06 | RAN#92 | R5-213095 | 0078 | - | F | Adding test applicability for new test cases introduced in R17                                                                                                     | 17.1.0 |
| 2021-06 | RAN#92 | R5-214006 | 0074 | 1 | F | Addition of new V2X test cases to the applicability table in 4.1.1                                                                                                 | 17.1.0 |
| 2021-06 | RAN#92 | R5-214089 | 0073 | 1 | F | Update to applicability spec for 5G test cases                                                                                                                     | 17.1.0 |
| 2021-06 | RAN#92 | R5-214096 | 0071 | 1 | F | Update of Applicability for Inter-band EN-DC Including FR2                                                                                                         | 17.1.0 |
| 2021-09 | RAN#93 | R5-214480 | 0081 | - | F | 38.522 Jumbo CR for R16 CADC configurations                                                                                                                        | 17.2.0 |
| 2021-09 | RAN#93 | R5-214534 | 0082 | - | F | Addition of applicability for FR2 DL 256QAM demodulation test case                                                                                                 | 17.2.0 |
| 2021-09 | RAN#93 | R5-214571 | 0083 | - | F | Adding test applicability for UE power saving test cases                                                                                                           | 17.2.0 |
| 2021-09 | RAN#93 | R5-214609 | 0084 | - | F | Correction of condition C30 C37 C37a C41 C41a and introduction of condition C37b and C37c                                                                          | 17.2.0 |
| 2021-09 | RAN#93 | R5-214834 | 0085 | - | F | Applicability for 5G-SRVCC                                                                                                                                         | 17.2.0 |
| 2021-09 | RAN#93 | R5-215033 | 0092 | - | F | Addition of applicability for NR HST TCs                                                                                                                           | 17.2.0 |
| 2021-09 | RAN#93 | R5-215045 | 0093 | - | F | Addition of R16 FDD-TDD PC2 inter-band EN-DC baseline implementation capabilities into 38.522                                                                      | 17.2.0 |
| 2021-09 | RAN#93 | R5-215079 | 0095 | - | F | Addition of test applicability for V2X test cases                                                                                                                  | 17.2.0 |
| 2021-09 | RAN#93 | R5-215245 | 0099 | - | F | Addition of test applicability for RRM test case 6.6.4.5                                                                                                           | 17.2.0 |
| 2021-09 | RAN#93 | R5-215399 | 0102 | - | F | Add 2-Step PRACH test cases to Applicability spec                                                                                                                  | 17.2.0 |
| 2021-09 | RAN#93 | R5-215411 | 0103 | - | F | Correction of RRM HST test cases applicability                                                                                                                     | 17.2.0 |
| 2021-09 | RAN#93 | R5-215931 | 0090 | 1 | F | Addition of applicability for Mob_Enh TCs                                                                                                                          | 17.2.0 |
| 2021-09 | RAN#93 | R5-215935 | 0096 | 1 | F | Adding test applicability for eMIMO test cases                                                                                                                     | 17.2.0 |
| 2021-09 | RAN#93 | R5-215960 | 0098 | 1 | F | Addition of applicability of URLLC demod test cases                                                                                                                | 17.2.0 |
| 2021-09 | RAN#93 | R5-215981 | 0086 | 1 | F | FR2 standalone RF conformance test case applicability                                                                                                              | 17.2.0 |
| 2021-09 | RAN#93 | R5-216077 | 0097 | 1 | F | Test applicability for FR2 256QAM CQI reporting                                                                                                                    | 17.2.0 |
| 2021-09 | RAN#93 | R5-216097 | 0101 | 1 | F | Update to applicability spec for 5G test cases                                                                                                                     | 17.2.0 |
| 2021-12 | RAN#94 | R5-216539 | 0105 | - | F | Addition of applicability for HST test case 5.2.3.1.9_1                                                                                                            | 17.3.0 |
| 2021-12 | RAN#94 | R5-216540 | 0106 | - | F | Addition of applicability for HST test case 5.2.3.1.10_1                                                                                                           | 17.3.0 |
| 2021-12 | RAN#94 | R5-216784 | 0109 | - | F | Correction to Test Bands Selection Criteria for performance test cases                                                                                             | 17.3.0 |
| 2021-12 | RAN#94 | R5-216852 | 0110 | - | F | Correction to applicability of RLM TCs                                                                                                                             | 17.3.0 |

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| 2021-12 | RAN#94 | R5-216870 | 0111 | - | F | Correction to applicability of Mob_enh RRM TCs                                                                        | 17.3.0 |
| 2021-12 | RAN#94 | R5-216911 | 0112 | - | F | Correction to applicability of HST TCs                                                                                | 17.3.0 |
| 2021-12 | RAN#94 | R5-217219 | 0114 | - | F | Correct of condition for RRM Test Cases with BWP switch                                                               | 17.3.0 |
| 2021-12 | RAN#94 | R5-217319 | 0116 | - | F | Addition of applicability for new type II PMI repoeing test cases                                                     | 17.3.0 |
| 2021-12 | RAN#94 | R5-217349 | 0118 | - | F | Update of 3.1 for definitions of CA and DC configurations                                                             | 17.3.0 |
| 2021-12 | RAN#94 | R5-217381 | 0120 | - | F | Addition of test applicability for URLLC test cases                                                                   | 17.3.0 |
| 2021-12 | RAN#94 | R5-217529 | 0122 | - | F | Jumbo CR for updating applicability of NR perf enh WI test cases                                                      | 17.3.0 |
| 2021-12 | RAN#94 | R5-217568 | 0123 | - | F | Correction of RRM HST test cases applicability                                                                        | 17.3.0 |
| 2021-12 | RAN#94 | R5-217569 | 0124 | - | F | Correction of RRM test cases applicability - Note 1 removal                                                           | 17.3.0 |
| 2021-12 | RAN#94 | R5-217597 | 0125 | - | F | Update applicability for Tx modulation quality test cases                                                             | 17.3.0 |
| 2021-12 | RAN#94 | R5-217729 | 0129 | - | F | 38.522 applicability updates for Rel.16 FR2 RF enhancements                                                           | 17.3.0 |
| 2021-12 | RAN#94 | R5-218249 | 0115 | 1 | F | Update of MPR applicability for intra-band contiguous EN-DC                                                           | 17.3.0 |
| 2021-12 | RAN#94 | R5-218370 | 0107 | 1 | F | Addition of content for FR2 standalone RF conformance test case applicability                                         | 17.3.0 |
| 2021-12 | RAN#94 | R5-218371 | 0128 | 1 | F | NR U test case applicability                                                                                          | 17.3.0 |
| 2021-12 | RAN#94 | R5-218390 | 0108 | 1 | F | Addition of Power Class 1.5 into applicability of RF SA FR1 conformance test cases                                    | 17.3.0 |
| 2021-12 | RAN#94 | R5-218437 | 0113 | 1 | F | 6.2B.2.2 MPR IBNC EN-DC applicability correction if 6.5B.2.2.3 ACLR IBNC EN-DC is executed                            | 17.3.0 |
| 2021-12 | RAN#94 | R5-218438 | 0127 | 1 | F | Update to applicability spec for 5G test cases                                                                        | 17.3.0 |
| 2021-12 | RAN#94 | R5-218460 | 0117 | 1 | F | Adding test applicability for switching time mask for inter-band EN-DC                                                | 17.3.0 |
| 2021-12 | RAN#94 | R5-218463 | 0119 | 1 | F | Addition of test applicability e-MIMO test cases                                                                      | 17.3.0 |
| 2022-03 | RAN#95 | R5-220041 | 0131 | - | F | Addition of the TDD DSS NR bands n34, n39                                                                             | 17.4.0 |
| 2022-03 | RAN#95 | R5-220163 | 0133 | - | F | Add 2-Step RACH test cases to Applicability spec                                                                      | 17.4.0 |
| 2022-03 | RAN#95 | R5-220166 | 0134 | - | F | Update of RRM test case applicability - Note 1 removal                                                                | 17.4.0 |
| 2022-03 | RAN#95 | R5-220663 | 0140 | - | F | Update of HST Demod test case applicability - Note 1 removal                                                          | 17.4.0 |
| 2022-03 | RAN#95 | R5-220673 | 0142 | - | F | Correcting applicability of HST test cases in 38.522                                                                  | 17.4.0 |
| 2022-03 | RAN#95 | R5-220757 | 0143 | - | F | Addition of new performance enhancement test case in 38.522                                                           | 17.4.0 |
| 2022-03 | RAN#95 | R5-220787 | 0144 | - | F | Update to test applicability for V2X test cases                                                                       | 17.4.0 |
| 2022-03 | RAN#95 | R5-220823 | 0145 | - | F | Update to test applicability for URLLC test cases                                                                     | 17.4.0 |
| 2022-03 | RAN#95 | R5-220965 | 0147 | - | F | Addition of applicability for test cases for EN-DC with 3 uplink                                                      | 17.4.0 |
| 2022-03 | RAN#95 | R5-221004 | 0149 | - | F | Correction to applicability of FR2 intra-frequency measurement without DRX and BFD TCs                                | 17.4.0 |
| 2022-03 | RAN#95 | R5-221048 | 0150 | - | F | Correction of 4.0 for tested DC configuration selection criteria                                                      | 17.4.0 |
| 2022-03 | RAN#95 | R5-221213 | 0152 | - | F | Addition of applicability for CADC MPR TC 6.2B.2.4_1.1                                                                | 17.4.0 |
| 2022-03 | RAN#95 | R5-221295 | 0154 | - | F | Correction of RRM test cases applicability - Note 1 removal                                                           | 17.4.0 |
| 2022-03 | RAN#95 | R5-221296 | 0155 | - | F | Addition of Idle Mode CA/DC Measurements test cases applicability                                                     | 17.4.0 |
| 2022-03 | RAN#95 | R5-221371 | 0158 | - | F | Adding new HST test cases                                                                                             | 17.4.0 |
| 2022-03 | RAN#95 | R5-221711 | 0132 | 1 | F | Correction of Additional Information for 6.2.2, 6.2.3 and 6.5.2.4.1 of 38.521-1 and 6.2B.2.3 and 6.2B.3.3 of 38.521-3 | 17.4.0 |
| 2022-03 | RAN#95 | R5-221712 | 0139 | 1 | F | Correction to Applicability and Additional information for EN-DC TC and RRM TC                                        | 17.4.0 |
| 2022-03 | RAN#95 | R5-221797 | 0153 | 1 | F | Addition of FR1 DL Interruptions test cases applicability                                                             | 17.4.0 |

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| 2022-03 | RAN#95 | R5-221831 | 0146 | 1 | F | Addition of test applicability for UE Enhancements on MIMO                                              | 17.4.0 |
| 2022-03 | RAN#95 | R5-221832 | 0148 | 1 | F | Addition of test applicability for L1-SINR measurement cases                                            | 17.4.0 |
| 2022-03 | RAN#95 | R5-221849 | 0130 | 1 | F | Updated the Test case conditions and selection criteria for TDD DSS NR bands n38, n48, n90              | 17.4.0 |
| 2022-03 | RAN#95 | R5-221850 | 0137 | 1 | F | Addition of FR1 CA CQI test cases applicability                                                         | 17.4.0 |
| 2022-03 | RAN#95 | R5-221851 | 0138 | 1 | F | Addition of FR2 CA CQI test cases applicability                                                         | 17.4.0 |
| 2022-03 | RAN#95 | R5-221852 | 0151 | 1 | F | Applicability of NR perf enh WI test cases                                                              | 17.4.0 |
| 2022-03 | RAN#95 | R5-221858 | 0135 | 1 | F | Correction of HST test case applicability                                                               | 17.4.0 |
| 2022-03 | RAN#95 | R5-221891 | 0136 | 1 | F | Correction of FR2 standalone Enhanced Beam correspondence - EIRP RF conformance test case applicability | 17.4.0 |
| 2022-03 | RAN#95 | R5-221913 | 0156 | 1 | F | New EVM test case applicability                                                                         | 17.4.0 |
| 2022-06 | RAN#96 | R5-222190 | 0159 | - | F | Correction of test applicability for 6.4.2.5 of 38.521-1                                                | 17.5.0 |
| 2022-06 | RAN#96 | R5-222191 | 0160 | - | F | Separation of 6.2B.1.4D of 38.521-3 into two test cases                                                 | 17.5.0 |
| 2022-06 | RAN#96 | R5-222562 | 0162 | - | F | Addition of applicability for CADC MOP TC                                                               | 17.5.0 |
| 2022-06 | RAN#96 | R5-222631 | 0164 | - | F | Addition of test applicability for NR SL Demod TCs                                                      | 17.5.0 |
| 2022-06 | RAN#96 | R5-222632 | 0165 | - | F | Addition of test applicability for NR SL RRM TCs                                                        | 17.5.0 |
| 2022-06 | RAN#96 | R5-222736 | 0169 | - | F | Add 7.5F.1 and 7.6F.2                                                                                   | 17.5.0 |
| 2022-06 | RAN#96 | R5-222914 | 0172 | - | F | Removing test case 6.5D.1_1 Occupied bandwidth for UL MIMO (Rel-16 onward) from 38.522                  | 17.5.0 |
| 2022-06 | RAN#96 | R5-222992 | 0176 | - | F | Removal of NOTE1 for test case 5.2.2.2.9_1, 5.2.2.2.10_1, 5.2.3.2.9_1                                   | 17.5.0 |
| 2022-06 | RAN#96 | R5-222994 | 0177 | - | F | Update of applicability of FR2 performance test                                                         | 17.5.0 |
| 2022-06 | RAN#96 | R5-223123 | 0181 | - | F | Test case 6.3.2.2.3, 6.3.2.2.4 and 6.3.3.2.3 in 38.522                                                  | 17.5.0 |
| 2022-06 | RAN#96 | R5-223701 | 0189 | 1 | F | Correction of FR1 DL Interruptions test cases applicability                                             | 17.5.0 |
| 2022-06 | RAN#96 | R5-223706 | 0178 | 1 | F | Addition of test applicability for eMIMO test cases                                                     | 17.5.0 |
| 2022-06 | RAN#96 | R5-223720 | 0163 | 1 | F | Applicability update for NR perf enh WI test cases                                                      | 17.5.0 |
| 2022-06 | RAN#96 | R5-223725 | 0166 | 1 | F | Correction to applicability of HST RRM TCs                                                              | 17.5.0 |
| 2022-06 | RAN#96 | R5-223753 | 0179 | 1 | F | 38.522 applicability updates for Rel.16 FR2 RF enhancements                                             | 17.5.0 |
| 2022-06 | RAN#96 | R5-223783 | 0170 | 1 | F | Jumbo Applicability CR for NR_RF_TxD WI                                                                 | 17.5.0 |
| 2022-06 | RAN#96 | R5-223791 | 0171 | 1 | F | Addition of test applicability for RedCap test cases                                                    | 17.5.0 |
| 2022-06 | RAN#96 | R5-223842 | 0161 | 1 | F | Correction to applicability for 6.2D.1.1 and 6.2D.1.2 of 38.521-2                                       | 17.5.0 |
| 2022-06 | RAN#96 | R5-223843 | 0167 | 1 | F | Correction to test bands selection criteria for UL MIMO capabilities                                    | 17.5.0 |
| 2022-06 | RAN#96 | R5-223844 | 0168 | 1 | F | Correction to applicability of 5G test cases                                                            | 17.5.0 |
| 2022-06 | RAN#96 | R5-223845 | 0180 | 1 | F | Correction on test condition for FR2 DL 256QAM test cases                                               | 17.5.0 |
| 2022-06 | RAN#96 | R5-223846 | 0185 | 1 | F | Addition to 3.3 for new abbreviations in TS 38.522                                                      | 17.5.0 |
| 2022-06 | RAN#96 | R5-223847 | 0186 | 1 | F | Correction to 4.0 on Tested CA DC configuration selection criteria for E005a, E010 and E010a            | 17.5.0 |
| 2022-06 | RAN#96 | R5-223848 | 0187 | 1 | F | Editorial correction to A.4.0 for Tested bands selection criteria                                       | 17.5.0 |
| 2022-06 | RAN#96 | R5-223849 | 0188 | 1 | F | Update of applicability of FR2 RF test cases                                                            | 17.5.0 |
| 2022-09 | RAN#97 | R5-223968 | 0190 | - | F | Applicability for 5.7.1.3 and 7.7.1.3                                                                   | 17.6.0 |
| 2022-09 | RAN#97 | R5-224381 | 0199 | - | F | Update of clause and description for eMIMO RRM Test Cases according to WP updated                       | 17.6.0 |
| 2022-09 | RAN#97 | R5-224438 | 0200 | - | F | Addition of applicability for CADC MOP TC                                                               | 17.6.0 |

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| 2022-09 | RAN#97 | R5-224504 | 0201 | - | F | Correction to applicability of NR SL Demod TCs                                                                                                  | 17.6.0 |
| 2022-09 | RAN#97 | R5-224634 | 0202 | - | F | Correction to applicability of C097                                                                                                             | 17.6.0 |
| 2022-09 | RAN#97 | R5-224839 | 0205 | - | F | Update to test applicability of CA test cases to support PC2                                                                                    | 17.6.0 |
| 2022-09 | RAN#97 | R5-224903 | 0206 | - | F | Update applicability for NR-U test cases                                                                                                        | 17.6.0 |
| 2022-09 | RAN#97 | R5-224968 | 0207 | - | F | Editorial, putting C003a and C003b in correct order                                                                                             | 17.6.0 |
| 2022-09 | RAN#97 | R5-224998 | 0208 | - | F | Correction to applicability of 5G test cases                                                                                                    | 17.6.0 |
| 2022-09 | RAN#97 | R5-225077 | 0209 | - | F | Adding new test condition and applicability for new test case 6.3C.3.2                                                                          | 17.6.0 |
| 2022-09 | RAN#97 | R5-225710 | 0197 | 1 | F | Addition of test applicability for FR2 EN-DC TX Test Cases 5CC to 8CCs                                                                          | 17.6.0 |
| 2022-09 | RAN#97 | R5-225724 | 0203 | 1 | F | Addition of test applicability for eMIMO test cases                                                                                             | 17.6.0 |
| 2022-09 | RAN#97 | R5-225747 | 0191 | 1 | F | Applicability for 2-step RACH test cases                                                                                                        | 17.6.0 |
| 2022-09 | RAN#97 | R5-225752 | 0196 | 1 | F | Update of inter-band CA PC2 test applicability                                                                                                  | 17.6.0 |
| 2022-09 | RAN#97 | R5-225755 | 0210 | 1 | F | Adding applicability for new SUL and UL MIMO test cases                                                                                         | 17.6.0 |
| 2022-09 | RAN#97 | R5-225764 | 0194 | 1 | F | Correction of Applicability of conformance test cases conditions, Tested Bands Selection Criteria and Branch for the TxD test cases in 38.521-1 | 17.6.0 |
| 2022-09 | RAN#97 | R5-225765 | 0204 | 1 | F | Addition of test applicability for TxD test cases                                                                                               | 17.6.0 |
| 2022-09 | RAN#97 | R5-225814 | 0192 | 1 | F | Correction of Applicability of conformance test cases conditions and Tested Bands Selection Criteria for the R15 test cases in 38.521-1         | 17.6.0 |
| 2022-09 | RAN#97 | R5-225882 | 0211 | 1 | F | Addition of test case for additional spurious for FR2                                                                                           | 17.6.0 |
| 2022-12 | RAN#98 | R5-225949 | 0213 |   | F | Adding applicability statements for UEs supporting 5GS FR1 and NR-DC                                                                            | 17.7.0 |
| 2022-12 | RAN#98 | R5-226112 | 0214 |   | F | Addition of applicability for RedCap RRM TCs                                                                                                    | 17.7.0 |
| 2022-12 | RAN#98 | R5-226335 | 0215 |   | F | Update to R16 NR CADC configuration test cases applicability                                                                                    | 17.7.0 |
| 2022-12 | RAN#98 | R5-226702 | 0223 |   | F | Addition of applicability for RedCap demod test cases                                                                                           | 17.7.0 |
| 2022-12 | RAN#98 | R5-226764 | 0226 |   | F | Correction to title of TC7.8F.2                                                                                                                 | 17.7.0 |
| 2022-12 | RAN#98 | R5-226795 | 0227 |   | F | Update applicability for performance test case 5.2.3.2.9_1                                                                                      | 17.7.0 |
| 2022-12 | RAN#98 | R5-226936 | 0231 |   | F | Adding applicability for new test cases for SUL with UL MIMO                                                                                    | 17.7.0 |
| 2022-12 | RAN#98 | R5-226942 | 0232 |   | F | Applicability for new Rel-16 FR2 RF requirements enhancements test cases                                                                        | 17.7.0 |
| 2022-12 | RAN#98 | R5-227117 | 0233 |   | F | Update of test applicability for RedCap test cases                                                                                              | 17.7.0 |
| 2022-12 | RAN#98 | R5-227248 | 0235 |   | F | Completion of test case 7.2.2.2.1_3                                                                                                             | 17.7.0 |
| 2022-12 | RAN#98 | R5-227383 | 0237 |   | F | Applicability spec updates related to rel16 FR2 RF enhancements                                                                                 | 17.7.0 |
| 2022-12 | RAN#98 | R5-227871 | 0234 | 1 | F | Addition of CA_DC enhancements test cases applicability                                                                                         | 17.7.0 |
| 2022-12 | RAN#98 | R5-227872 | 0221 | 1 | F | Applicability spec update for DL1024QAM test cases                                                                                              | 17.7.0 |
| 2022-12 | RAN#98 | R5-227874 | 0230 | 1 | F | Update to test applicability of SUL test cases                                                                                                  | 17.7.0 |
| 2022-12 | RAN#98 | R5-227876 | 0224 | 1 | F | Add applicability of 6.4F.2.2 and 6.5F.4                                                                                                        | 17.7.0 |
| 2022-12 | RAN#98 | R5-227877 | 0236 | 1 | F | Addition of test applicability for NR-U Demod and RRM test cases                                                                                | 17.7.0 |
| 2022-12 | RAN#98 | R5-227878 | 0218 | 1 | F | Update to R16 NR perf enh test cases applicability                                                                                              | 17.7.0 |
| 2022-12 | RAN#98 | R5-227879 | 0219 | 1 | F | Applicability of NSA CA test cases                                                                                                              | 17.7.0 |
| 2022-12 | RAN#98 | R5-228030 | 0217 | 1 | F | Update to R17 NR HST FR1 enh test cases applicability                                                                                           | 17.7.0 |
| 2022-12 | RAN#98 | R5-228040 | 0229 | 1 | F | Updating test applicability for TxD test cases                                                                                                  | 17.7.0 |

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| 2022-12 | RAN#98  | R5-228049 | 0225 | 1 | F | Correction to applicability of 5G test cases                                                                  | 17.7.0 |
| 2023-03 | RAN#99  | R5-230416 | 0240 | - | F | Update to R17 NR HST FR1 enh test cases applicability                                                         | 17.8.0 |
| 2023-03 | RAN#99  | R5-230458 | 0244 | - | F | Addition of Applicability for RedCap RRM TCs                                                                  | 17.8.0 |
| 2023-03 | RAN#99  | R5-230526 | 0245 | - | F | Addition of Applicability for RRM enhancement TCs                                                             | 17.8.0 |
| 2023-03 | RAN#99  | R5-230576 | 0246 | - | F | Editorial correction for Applicability Comment of 6.2G.3 and 6.2G.4 in 4.1.1                                  | 17.8.0 |
| 2023-03 | RAN#99  | R5-230667 | 0249 | - | F | Addition of applicabilities for NR-U test cases                                                               | 17.8.0 |
| 2023-03 | RAN#99  | R5-230679 | 0251 | - | F | Addition of applicability for RedCap demod test cases                                                         | 17.8.0 |
| 2023-03 | RAN#99  | R5-231091 | 0258 | - | F | Adding applicability for new test cases for SUL with UL MIMO                                                  | 17.8.0 |
| 2023-03 | RAN#99  | R5-231658 | 0267 | - | F | Correction of test case title of 7.6D.2_1 and 7.8D.2_1 of 38.521-1                                            | 17.8.0 |
| 2023-03 | RAN#99  | R5-231806 | 0241 | 1 | F | Addition of applicability for DC_CA test cases                                                                | 17.8.0 |
| 2023-03 | RAN#99  | R5-231808 | 0238 | 1 | F | Update to R16 NR CADC configuration test cases applicability                                                  | 17.8.0 |
| 2023-03 | RAN#99  | R5-231809 | 0263 | 1 | F | Update 38.522 for 7.3A.3 Reference sensitivity power level for 4DL CA                                         | 17.8.0 |
| 2023-03 | RAN#99  | R5-231810 | 0265 | 1 | F | Addition of applicability for FR2 RF phase continuity test                                                    | 17.8.0 |
| 2023-03 | RAN#99  | R5-231812 | 0242 | 1 | F | Add applicability of new test cases for gap enhancement                                                       | 17.8.0 |
| 2023-03 | RAN#99  | R5-231814 | 0260 | 1 | F | Correction of applicability of the RedCap test cases                                                          | 17.8.0 |
| 2023-03 | RAN#99  | R5-231815 | 0256 | 1 | F | Adding test applicability for CA test cases                                                                   | 17.8.0 |
| 2023-03 | RAN#99  | R5-231816 | 0248 | 1 | F | Adding applicability statement for UE UL carrier RRC reconfiguration delay for FR2                            | 17.8.0 |
| 2023-03 | RAN#99  | R5-231817 | 0266 | 1 | F | Applicability updates to FR2 RF tests                                                                         | 17.8.0 |
| 2023-03 | RAN#99  | R5-231818 | 0247 | 1 | F | Adding applicability statements for UEs supporting TA Validation for CG-SDT in FR2                            | 17.8.0 |
| 2023-03 | RAN#99  | R5-231819 | 0254 | 1 | F | Introduction of abbreviation of CCA and clarification on FR1 band selection with CCA                          | 17.8.0 |
| 2023-03 | RAN#99  | R5-231821 | 0259 | 1 | F | Additional information note correction for RRM test cases                                                     | 17.8.0 |
| 2023-03 | RAN#99  | R5-231878 | 0252 | 1 | F | Addition of applicability for 5GS FR1 and FR2 PDC IoT Test Cases                                              | 17.8.0 |
| 2023-03 | RAN#99  | R5-231888 | 0261 | 1 | F | Correction to applicability of 5G test cases                                                                  | 17.8.0 |
| 2023-03 | RAN#99  | R5-231894 | 0255 | 1 | F | Update to BWP adaptation applicability conditions                                                             | 17.8.0 |
| 2023-03 | RAN#99  | R5-231973 | 0262 | 2 | F | Update test condition for 7.3.2 and 6.2.x                                                                     | 17.8.0 |
| 2023-06 | RAN#100 | R5-232129 | 0269 | - | F | Adding applicability statement for SCell Activation and deactivation for SCell in FR2 inter-band in non-DRX   | 17.9.0 |
| 2023-06 | RAN#100 | R5-232274 | 0272 | - | F | Adding applicability UE Rx-Tx time difference measurement for propagation delay compensation using TRS in FR2 | 17.9.0 |
| 2023-06 | RAN#100 | R5-232458 | 0273 | - | F | Correction to applicability of RedCap RRM TCs                                                                 | 17.9.0 |
| 2023-06 | RAN#100 | R5-232578 | 0275 | - | F | Addition of applicability for RedCap demod test cases                                                         | 17.9.0 |
| 2023-06 | RAN#100 | R5-232580 | 0276 | - | F | Addition of applicability for test case 6.5F.2.4.2                                                            | 17.9.0 |
| 2023-06 | RAN#100 | R5-232742 | 0278 | - | F | Addition of test applicability for SUL test cases with UL MIMO                                                | 17.9.0 |
| 2023-06 | RAN#100 | R5-232756 | 0279 | - | F | Correction to test applicability for UL MIMO test cases                                                       | 17.9.0 |
| 2023-06 | RAN#100 | R5-232812 | 0283 | - | F | Update to R17 NR HST FR1 enh test cases applicability                                                         | 17.9.0 |
| 2023-06 | RAN#100 | R5-232834 | 0284 | - | F | Adding applicability for MMSE-IRC test cases                                                                  | 17.9.0 |
| 2023-06 | RAN#100 | R5-232928 | 0287 | - | F | Applicability of FR2 RedCap reselection test cases                                                            | 17.9.0 |
| 2023-06 | RAN#100 | R5-233032 | 0289 | - | F | Update to test applicability of beam correspondence                                                           | 17.9.0 |
| 2023-06 | RAN#100 | R5-233253 | 0298 | - | F | Applicability updates to FR2 RF tests                                                                         | 17.9.0 |

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| 2023-06 | RAN#100 | R5-233506 | 0270 | 1 | F | Addition of applicability for 5GS HST FR2 test case                                                        | 17.9.0  |
| 2023-06 | RAN#100 | R5-233685 | 0296 | 1 | F | Update to handle the test case applicability with different branches                                       | 17.9.0  |
| 2023-06 | RAN#100 | R5-233686 | 0271 | 1 | F | Completion of applicability for DC_CA test cases                                                           | 17.9.0  |
| 2023-06 | RAN#100 | R5-233687 | 0297 | 1 | F | Addition of applicability for FR2 RF phase continuity test                                                 | 17.9.0  |
| 2023-06 | RAN#100 | R5-233689 | 0291 | 1 | F | Addition of applicability for NR feMIMO test cases                                                         | 17.9.0  |
| 2023-06 | RAN#100 | R5-233690 | 0268 | 1 | F | Add applicability of new test cases for gap enhancement- Pre-MG and NCSG                                   | 17.9.0  |
| 2023-06 | RAN#100 | R5-233691 | 0277 | 1 | F | Update to RRM applicability rules and test optimization - 38.522                                           | 17.9.0  |
| 2023-06 | RAN#100 | R5-233692 | 0280 | 1 | F | Correction to applicability for performance test cases                                                     | 17.9.0  |
| 2023-06 | RAN#100 | R5-233693 | 0299 | 1 | F | Applicability update for FR2 TCI state switch tests                                                        | 17.9.0  |
| 2023-06 | RAN#100 | R5-233710 | 0274 | 1 | F | Update of eMG case applicabilities                                                                         | 17.9.0  |
| 2023-06 | RAN#100 | R5-233715 | 0290 | 1 | F | Update to test applicability of SUL test cases                                                             | 17.9.0  |
| 2023-06 | RAN#100 | R5-233727 | 0293 | 1 | F | Update of applicability for FR2 CA test cases                                                              | 17.9.0  |
| 2023-06 | RAN#100 | R5-233728 | 0295 | 1 | F | Correction to applicability of 5G test cases                                                               | 17.9.0  |
| 2023-06 | RAN#100 | R5-233731 | 0285 | 1 | F | Applicability update for CLI test cases                                                                    | 17.9.0  |
| 2023-06 | RAN#100 | R5-233736 | 0281 | 1 | F | Update to R16 NR CADDC configuration test cases applicability                                              | 17.9.0  |
| 2023-06 | RAN#100 | R5-233778 | 0294 | 1 | F | Update applicability for in-band blocking FR2 CA test cases                                                | 17.9.0  |
| 2023-09 | RAN#101 | R5-234067 | 0300 | - | F | Adding applicability rules for the remaining MMSE-IRC test cases                                           | 17.10.0 |
| 2023-09 | RAN#101 | R5-234188 | 0302 | - | F | Set branch column to PC3 for Rel-15 in FR1 test case 6.4.2.5                                               | 17.10.0 |
| 2023-09 | RAN#101 | R5-234335 | 0303 | - | F | Addition of applicability for 5GS HST FR2 7.1.1.7 test case                                                | 17.10.0 |
| 2023-09 | RAN#101 | R5-234359 | 0306 | - | F | Adding applicability statement for NR SA FR2 SSB based Inter-cell L1-RSRP measurement in non-DRX test case | 17.10.0 |
| 2023-09 | RAN#101 | R5-234368 | 0307 | - | F | Addition of applicability for MRDC test cases                                                              | 17.10.0 |
| 2023-09 | RAN#101 | R5-234427 | 0309 | - | F | Addition of applicability for RRM enh TCs                                                                  | 17.10.0 |
| 2023-09 | RAN#101 | R5-234433 | 0310 | - | F | Correction to applicability for SFTD TCs                                                                   | 17.10.0 |
| 2023-09 | RAN#101 | R5-234624 | 0312 | - | F | Update of applicability for MG enhancements cases                                                          | 17.10.0 |
| 2023-09 | RAN#101 | R5-234667 | 0315 | - | F | Update to applicability for RedCap RLM, BFR and BWP switch test cases                                      | 17.10.0 |
| 2023-09 | RAN#101 | R5-234673 | 0316 | - | F | Update to applicability of stationary idle mode RedCap tests                                               | 17.10.0 |
| 2023-09 | RAN#101 | R5-234675 | 0317 | - | F | Applicability update for RRM FR2 test cases                                                                | 17.10.0 |
| 2023-09 | RAN#101 | R5-234679 | 0318 | - | F | Update to applicability for FR2 TCI state switch tests                                                     | 17.10.0 |
| 2023-09 | RAN#101 | R5-234690 | 0319 | - | F | Adding applicability statements for RRM test cases 16.6.7.1 and 16.6.7.2                                   | 17.10.0 |
| 2023-09 | RAN#101 | R5-234711 | 0320 | - | F | Update of applicability for inter-band PC2 CA test cases                                                   | 17.10.0 |
| 2023-09 | RAN#101 | R5-234735 | 0322 | - | F | Update to R17 NR CADDC configuration test cases applicability                                              | 17.10.0 |
| 2023-09 | RAN#101 | R5-234826 | 0325 | - | F | Updates of applicability for RedCap demod test cases                                                       | 17.10.0 |
| 2023-09 | RAN#101 | R5-234862 | 0327 | - | F | Addition of applicability for test cases of unified TCI state                                              | 17.10.0 |
| 2023-09 | RAN#101 | R5-234931 | 0328 | - | F | Addition of new NR-U test case 6.2F.2 in 38.522                                                            | 17.10.0 |
| 2023-09 | RAN#101 | R5-235039 | 0329 | - | F | Removing NOTE 1 for test case 6.5D.2.2_1 in table 4.1.1-1                                                  | 17.10.0 |

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| 2023-09 | RAN#101 | R5-235105 | 0331 | - | F | Addition applicability for Power saving Enh test cases 6.5.1.9 and 5.5.5.9                                        | 17.10.0 |
| 2023-09 | RAN#101 | R5-235220 | 0334 | - | F | Update to applicability for FR2 RF phase continuity test                                                          | 17.10.0 |
| 2023-09 | RAN#101 | R5-235797 | 0321 | 1 | F | Update to R16 NR CADC configuration test cases applicability                                                      | 17.10.0 |
| 2023-09 | RAN#101 | R5-235798 | 0314 | 1 | F | Update to NR-U test applicability                                                                                 | 17.10.0 |
| 2023-09 | RAN#101 | R5-235799 | 0308 | 1 | F | Correction to applicability for RedCap RRM TCs                                                                    | 17.10.0 |
| 2023-09 | RAN#101 | R5-235800 | 0313 | 1 | F | Update to applicability for power savings tests                                                                   | 17.10.0 |
| 2023-09 | RAN#101 | R5-235801 | 0305 | 1 | F | Adding applicability statement for NR SA FR1 DL interruptions at switching between two uplink carriers test cases | 17.10.0 |
| 2023-09 | RAN#101 | R5-235802 | 0326 | 1 | F | Addition of test applicability for 2Tx switching                                                                  | 17.10.0 |
| 2023-09 | RAN#101 | R5-235803 | 0311 | 1 | F | Update to applicability of 5G test cases                                                                          | 17.10.0 |
| 2023-09 | RAN#101 | R5-235804 | 0333 | 1 | F | Corrections on the note for operator NOT in Table 4.0-2                                                           | 17.10.0 |
| 2023-09 | RAN#101 | R5-235962 | 0301 | 1 | F | Correction of Additional Information for 6.5B.3.3.1, 6.5B.3.3.2 and 7.3B.2.3 of 38.521-3                          | 17.10.0 |
| 2023-09 | RAN#101 | R5-234751 | 0324 | - | F | Update of RF UL MIMO test case applicability                                                                      | 18.0.0  |
| 2023-12 | RAN#102 | R5-236503 | 0340 | - | F | Adding applicability for newly introduced NR-U test cases                                                         | 18.1.0  |
| 2023-12 | RAN#102 | R5-236516 | 0341 | - | F | Adding applicability for newly introduced RedCap test cases                                                       | 18.1.0  |
| 2023-12 | RAN#102 | R5-236631 | 0343 | - | F | Updating to test applicability of URLLC test cases                                                                | 18.1.0  |
| 2023-12 | RAN#102 | R5-236875 | 0349 | - | F | Addition of test applicability for MR-DC enhancement test cases                                                   | 18.1.0  |
| 2023-12 | RAN#102 | R5-236912 | 0350 | - | F | Addition of applicability of FR1 CA with UL MIMO test cases                                                       | 18.1.0  |
| 2023-12 | RAN#102 | R5-237024 | 0352 | - | F | Applicability of RRM enhancement test cases                                                                       | 18.1.0  |
| 2023-12 | RAN#102 | R5-237217 | 0361 | - | F | Update on 6.5.1.9 applicability                                                                                   | 18.1.0  |
| 2023-12 | RAN#102 | R5-237259 | 0363 | - | F | Applicability update for FR2 UL MIMO test cases                                                                   | 18.1.0  |
| 2023-12 | RAN#102 | R5-237301 | 0365 | - | F | Removal of NOTE 1 from applicability of FR1 CA with UL Tx switching test cases                                    | 18.1.0  |
| 2023-12 | RAN#102 | R5-237469 | 0364 | 2 | F | Update to applicability spec for NTN test cases                                                                   | 18.1.0  |
| 2023-12 | RAN#102 | R5-237772 | 0356 | 1 | F | Addition of test applicability and condition for RRM MR-DC Rel-17 Test Cases                                      | 18.1.0  |
| 2023-12 | RAN#102 | R5-237773 | 0344 | 1 | F | Update to R16 NR CADC configuration test cases applicability                                                      | 18.1.0  |
| 2023-12 | RAN#102 | R5-237774 | 0362 | 1 | F | Applicability updates for Phase continuity tests                                                                  | 18.1.0  |
| 2023-12 | RAN#102 | R5-237775 | 0336 | 1 | F | Addition of applicability of HST FR2 test cases                                                                   | 18.1.0  |
| 2023-12 | RAN#102 | R5-237776 | 0335 | 1 | F | Update of applicability for MG enhancements TC                                                                    | 18.1.0  |
| 2023-12 | RAN#102 | R5-237777 | 0342 | 1 | F | Correction to applicability of 5G test cases                                                                      | 18.1.0  |
| 2023-12 | RAN#102 | R5-237778 | 0351 | 1 | F | Applicability of RedCap test cases                                                                                | 18.1.0  |
| 2023-12 | RAN#102 | R5-237779 | 0354 | 1 | F | Updating FR1 test case branches for intra-band UL CA testing                                                      | 18.1.0  |
| 2023-12 | RAN#102 | R5-237780 | 0357 | 1 | F | Update to FR1 SDT test case applicability                                                                         | 18.1.0  |
| 2023-12 | RAN#102 | R5-237781 | 0358 | 1 | F | Applicability update for NR-U RRM test cases                                                                      | 18.1.0  |
| 2023-12 | RAN#102 | R5-237782 | 0360 | 1 | F | Addition of Test Selection Criteria for RRM                                                                       | 18.1.0  |
| 2023-12 | RAN#102 | R5-237913 | 0347 | 1 | F | Correction to applicability for RedCap RRM TCs                                                                    | 18.1.0  |
| 2023-12 | RAN#102 | R5-237933 | 0338 | 1 | F | Addition of MMSE-IRC CQI reporting test applicability rule                                                        | 18.1.0  |

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| 2024-03 | RAN#103 | R5-240212 | 0370 | - | F | Editorial Correction to HST TCs on release information                                               | 18.2.0 |
| 2024-03 | RAN#103 | R5-240368 | 0373 | - | F | Applicability statement for DL interruptions test cases 6.5.7A.1 and 6.5.7B.1                        | 18.2.0 |
| 2024-03 | RAN#103 | R5-240508 | 0376 | - | F | Addition of applicability for HST FR2 test cases                                                     | 18.2.0 |
| 2024-03 | RAN#103 | R5-240520 | 0377 | - | F | Removal of NOTE 1 from applicability of FR2 feMIMO test case                                         | 18.2.0 |
| 2024-03 | RAN#103 | R5-240771 | 0378 | - | F | Correction to applicability for NR-U test cases                                                      | 18.2.0 |
| 2024-03 | RAN#103 | R5-240783 | 0379 | - | F | Removal of NOTE 1 from applicability of FR1 and FR2 MRDC test cases                                  | 18.2.0 |
| 2024-03 | RAN#103 | R5-240831 | 0382 | - | F | Addition of applicability for RedCap test case 6.2.2.1.2.4                                           | 18.2.0 |
| 2024-03 | RAN#103 | R5-240857 | 0383 | - | F | Addition of applicability for NR-U test cases                                                        | 18.2.0 |
| 2024-03 | RAN#103 | R5-240932 | 0385 | - | F | Correction to applicability of 5G test cases                                                         | 18.2.0 |
| 2024-03 | RAN#103 | R5-241004 | 0386 | - | F | Adding test applicability for V2X test cases                                                         | 18.2.0 |
| 2024-03 | RAN#103 | R5-241131 | 0388 | - | F | Adding applicability for newly introduced NR-U test cases                                            | 18.2.0 |
| 2024-03 | RAN#103 | R5-241140 | 0389 | - | F | Update to applicability spec for Redcap Demod test case                                              | 18.2.0 |
| 2024-03 | RAN#103 | R5-241239 | 0392 | - | F | Correction to applicability notes for FR2 RRM RLM test cases                                         | 18.2.0 |
| 2024-03 | RAN#103 | R5-241302 | 0395 | - | F | Applicability update for several RedCap tests                                                        | 18.2.0 |
| 2024-03 | RAN#103 | R5-241305 | 0396 | - | F | Update to Applicability General Section                                                              | 18.2.0 |
| 2024-03 | RAN#103 | R5-241348 | 0398 | - | F | Alignment of status of FR2 UL MIMO test cases                                                        | 18.2.0 |
| 2024-03 | RAN#103 | R5-241379 | 0401 | - | F | Add subtest selection criteria to RedCap Performance test cases                                      | 18.2.0 |
| 2024-03 | RAN#103 | R5-241675 | 0375 | 2 | F | Addition of applicability for FeMIMO test cases                                                      | 18.2.0 |
| 2024-03 | RAN#103 | R5-241841 | 0397 | 1 | F | Update to test selection criteria for RRM tests                                                      | 18.2.0 |
| 2024-03 | RAN#103 | R5-241842 | 0366 | 1 | F | Addition of TC applicability statements for ATG UE                                                   | 18.2.0 |
| 2024-03 | RAN#103 | R5-241843 | 0367 | 1 | F | Update to R16 NR CADC configuration test cases applicability                                         | 18.2.0 |
| 2024-03 | RAN#103 | R5-241844 | 0404 | 1 | F | Applicability updates for Phase continuity tests                                                     | 18.2.0 |
| 2024-03 | RAN#103 | R5-241845 | 0371 | 1 | F | Addition of MMSE-IRC CQI reporting test applicability rule                                           | 18.2.0 |
| 2024-03 | RAN#103 | R5-241846 | 0390 | 1 | F | Applicability update for PDSCH interference test cases                                               | 18.2.0 |
| 2024-03 | RAN#103 | R5-241848 | 0406 | 1 | F | Addition of applicability for RedCap Demod and RRM test cases                                        | 18.2.0 |
| 2024-03 | RAN#103 | R5-241849 | 0380 | 1 | F | Addition of event triggered reporting test cases applicability                                       | 18.2.0 |
| 2024-03 | RAN#103 | R5-241850 | 0384 | 1 | F | Update to RRM Power saving enhancement 5.5.5.9 test case applicability                               | 18.2.0 |
| 2024-03 | RAN#103 | R5-241851 | 0394 | 1 | F | Update to NR-U test applicability                                                                    | 18.2.0 |
| 2024-03 | RAN#103 | R5-241873 | 0391 | 1 | F | Add information to non-TXD test cases with UE supports TXD                                           | 18.2.0 |
| 2024-03 | RAN#103 | R5-241910 | 0374 | 1 | F | Update of Applicability and Additional Information of RF conformance test cases for Satellite Access | 18.2.0 |
| 2024-03 | RAN#103 | R5-241946 | 0399 | 1 | F | Update of applicability for FR1 4DL CA test cases                                                    | 18.2.0 |
| 2024-03 | RAN#103 | R5-241962 | 0393 | 1 | F | Addition of missing applicability to new SS-RSRQ RedCap test cases                                   | 18.2.0 |
| 2024-03 | RAN#103 | R5-241988 | 0387 | 1 | F | Update to test applicability for R17 FR1 enhancement                                                 | 18.2.0 |
| 2024-03 | RAN#103 | R5-241993 | 0372 | 1 | F | Update of Additional Information for 6.5.3.1 in 38.521-1 and 6.5B.3.3.2 in 38.521-3                  | 18.2.0 |

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| 2024-06 | RAN#104 | R5-242443 | 0408 | - | F | Correction of test applicability rule for CQI reporting test cases with inter-cell interference                             | 18.3.0 |
| 2024-06 | RAN#104 | R5-242494 | 0409 | - | F | Addition of applicability for new NR-U test cases                                                                           | 18.3.0 |
| 2024-06 | RAN#104 | R5-242512 | 0410 | - | F | Update applicability for NR NTN test cases                                                                                  | 18.3.0 |
| 2024-06 | RAN#104 | R5-242523 | 0411 | - | F | Correction on applicability for PC1.5 in Rx tests                                                                           | 18.3.0 |
| 2024-06 | RAN#104 | R5-242846 | 0421 | - | F | Correction to Test Bands Selection Condition for Performance test case 5.3.2.2.5                                            | 18.3.0 |
| 2024-06 | RAN#104 | R5-242932 | 0424 | - | F | Addition of applicabilities for 3Tx NR CA and EN-DC test cases                                                              | 18.3.0 |
| 2024-06 | RAN#104 | R5-242984 | 0425 | - | F | Addition of missing applicability to RedCap SS-RSRP test cases                                                              | 18.3.0 |
| 2024-06 | RAN#104 | R5-243109 | 0430 | - | F | Applicability for FR2 NSA power tolerance CA test cases                                                                     | 18.3.0 |
| 2024-06 | RAN#104 | R5-243129 | 0431 | - | F | Cleaning up test applicability for ULFPTx                                                                                   | 18.3.0 |
| 2024-06 | RAN#104 | R5-243144 | 0433 | - | F | Update to test applicability of V2X test cases                                                                              | 18.3.0 |
| 2024-06 | RAN#104 | R5-243152 | 0434 | - | F | Update to applicability of FeMIMO test cases                                                                                | 18.3.0 |
| 2024-06 | RAN#104 | R5-243292 | 0436 | - | F | Corrections on 4.0 for NTN tested bands selection criteria                                                                  | 18.3.0 |
| 2024-06 | RAN#104 | R5-243394 | 0437 | - | F | Addition of applicability table for NR NTN RRM tests                                                                        | 18.3.0 |
| 2024-06 | RAN#104 | RP-241590 | 0438 | 1 | F | Update to NR-U test applicability                                                                                           | 18.3.0 |
| 2024-06 | RAN#104 | R5-243396 | 0439 | - | F | Applicability correction to gap-based measurement tests for RedCap                                                          | 18.3.0 |
| 2024-06 | RAN#104 | R5-243397 | 0440 | - | F | Applicability correction to gap-based measurement tests                                                                     | 18.3.0 |
| 2024-06 | RAN#104 | R5-243437 | 0442 | - | F | Applicability spec update for inter-cell CRS interference test case                                                         | 18.3.0 |
| 2024-06 | RAN#104 | R5-243439 | 0443 | - | F | Applicability spec update to allow skipping 2DLCA and 3DCLA PDSCH Demodulation test cases                                   | 18.3.0 |
| 2024-06 | RAN#104 | R5-243440 | 0444 | - | F | Applicability spec update for NR-NTN test cases                                                                             | 18.3.0 |
| 2024-06 | RAN#104 | R5-243715 | 0413 | 1 | F | Editorial Correction of FR2 feMIMO test case                                                                                | 18.3.0 |
| 2024-06 | RAN#104 | R5-243716 | 0415 | 1 | F | Additional applicability for Inter-cell SSB based L1-RSRP measurements                                                      | 18.3.0 |
| 2024-06 | RAN#104 | R5-243717 | 0416 | 1 | F | Additional applicability for HST FR2 test cases                                                                             | 18.3.0 |
| 2024-06 | RAN#104 | R5-243718 | 0414 | 1 | F | Applicability correction of RRM enhancements test cases                                                                     | 18.3.0 |
| 2024-06 | RAN#104 | R5-243719 | 0417 | 1 | F | Addition of test applicability for Rel-16 RRM EN-DC CSI-RSRP measurement accuracy with FR1 serving cell and FR1 target cell | 18.3.0 |
| 2024-06 | RAN#104 | R5-243729 | 0429 | 1 | F | Update of applicability of FR2 CA and MIMO test cases                                                                       | 18.3.0 |
| 2024-06 | RAN#104 | R5-243813 | 0441 | 1 | F | Applicability updates for Phase continuity tests                                                                            | 18.3.0 |
| 2024-06 | RAN#104 | R5-243910 | 0419 | 1 | F | Correction condition F011 for 38.533 TC16.4.1.1                                                                             | 18.3.0 |
| 2024-06 | RAN#104 | R5-243914 | 0422 | 1 | F | Addition of applicability for MCE RRM test cases                                                                            | 18.3.0 |
| 2024-06 | RAN#104 | R5-243923 | 0412 | 1 | F | Correction to TC titles in applicability table of RRM event triggered reporting TCs with measurement gaps                   | 18.3.0 |
| 2024-06 | RAN#104 | R5-244010 | 0420 | 2 | F | Correction to applicability of 5G test cases                                                                                | 18.3.0 |
| 2024-06 | RAN#104 | R5-244011 | 0423 | 2 | F | Correction to applicability for RedCap RRM test cases                                                                       | 18.3.0 |
| 2024-09 | RAN#105 | R5-244142 | 0445 | - | F | Addition of applicability for enhanced DMRS test cases                                                                      | 18.4.0 |
| 2024-09 | RAN#105 | R5-244283 | 0446 | - | F | Update of applicability for FR1 LTM test cases                                                                              | 18.4.0 |
| 2024-09 | RAN#105 | R5-244600 | 0458 | - | F | Correction of FR1 RRM TCs applicability for 8Rx capable UEs                                                                 | 18.4.0 |

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| 2024-09 | RAN#105 | R5-244604 | 0459 | - | F | Correction to applicabilities for MCE RRM test cases                                                                                               | 18.4.0 |
| 2024-09 | RAN#105 | R5-245018 | 0467 | - | F | Update to applicability for R16 V2X                                                                                                                | 18.4.0 |
| 2024-09 | RAN#105 | R5-245073 | 0469 | - | F | Update to general information for NR NTN                                                                                                           | 18.4.0 |
| 2024-09 | RAN#105 | R5-245163 | 0472 | - | F | Addition of applicabilities for 3Tx spurious emissions test cases                                                                                  | 18.4.0 |
| 2024-09 | RAN#105 | R5-245302 | 0476 | - | F | Addition of applicability for PDSCH CRS interference mitigation under NR-LTE coexistence test cases 5.2.2.1.18, 5.2.2.2.19, 5.2.3.1.17, 5.2.3.2.18 | 18.4.0 |
| 2024-09 | RAN#105 | R5-245371 | 0478 | - | F | Update to applicability for NR-NTN RRM test cases                                                                                                  | 18.4.0 |
| 2024-09 | RAN#105 | R5-245374 | 0481 | - | F | Update to NR-U test applicability                                                                                                                  | 18.4.0 |
| 2024-09 | RAN#105 | R5-245375 | 0482 | - | F | Update to applicability for EN-DC FR2 tests with measurement gap                                                                                   | 18.4.0 |
| 2024-09 | RAN#105 | R5-245914 | 0449 | 1 | F | Update to R16 NR CADC configuration test cases applicability                                                                                       | 18.4.0 |
| 2024-09 | RAN#105 | R5-245915 | 0456 | 1 | F | Addition of test applicability for less than 5 MHz test cases                                                                                      | 18.4.0 |
| 2024-09 | RAN#105 | R5-245916 | 0455 | 1 | F | Addition of test applicability for Rel-18 HST FR2 test cases                                                                                       | 18.4.0 |
| 2024-09 | RAN#105 | R5-245917 | 0464 | 1 | F | Adding test applicability for new FR1 SUL test case 6.3C.3.6 and 6.3C.3.6_1                                                                        | 18.4.0 |
| 2024-09 | RAN#105 | R5-245918 | 0457 | 1 | F | Addition of applicability for downlink and uplink MIMO evolution test cases                                                                        | 18.4.0 |
| 2024-09 | RAN#105 | R5-245919 | 0471 | 1 | F | Addition of new eRedCap test cases in 38.522                                                                                                       | 18.4.0 |
| 2024-09 | RAN#105 | R5-245920 | 0462 | 1 | F | Correction of SRS Carrier Switching Test Cases Applicability                                                                                       | 18.4.0 |
| 2024-09 | RAN#105 | R5-245921 | 0463 | 1 | F | Addition of test applicability for Test Cases of Rel-16 RRM EN-DC CSI-RS based measurement                                                         | 18.4.0 |
| 2024-09 | RAN#105 | R5-245951 | 0465 | 1 | F | Update of applicability of FR2 CA and MIMO test cases                                                                                              | 18.4.0 |
| 2024-09 | RAN#105 | R5-245977 | 0466 | 1 | F | Update to applicability for R17 sidelink enhancement                                                                                               | 18.4.0 |
| 2024-09 | RAN#105 | R5-245978 | 0470 | 1 | F | Correction of applicability for test case 6.2A.4.1.1                                                                                               | 18.4.0 |
| 2024-09 | RAN#105 | R5-246000 | 0468 | 1 | F | Update to applicability of 5G test cases                                                                                                           | 18.4.0 |
| 2024-09 | RAN#105 | R5-246008 | 0477 | 1 | F | Addition of test applicability for eRedCap RF test cases                                                                                           | 18.4.0 |
| 2024-09 | RAN#105 | R5-246063 | 0489 | 1 | F | Updates to applicability for some NTN RF tests                                                                                                     | 18.4.0 |
| 2024-12 | RAN#106 | R5-246322 | 0492 | - | F | Update to applicability of test cases for Satellite Access                                                                                         | 18.5.0 |
| 2024-12 | RAN#106 | R5-246506 | 0493 | - | F | Introduction of Applicabilities for V2X receiver test cases                                                                                        | 18.5.0 |
| 2024-12 | RAN#106 | R5-246717 | 0500 | - | F | Correction to applicability of FR2 EN-DC and NR SA RRM test cases                                                                                  | 18.5.0 |
| 2024-12 | RAN#106 | R5-246778 | 0502 | - | F | Addition of applicability for new NR-U test case 6.2A.3.1.1_1                                                                                      | 18.5.0 |
| 2024-12 | RAN#106 | R5-246885 | 0507 | - | F | Correction to applicability of FR1 EN-DC and NR SA RRM test cases                                                                                  | 18.5.0 |
| 2024-12 | RAN#106 | R5-246921 | 0508 | - | F | Addition of applicabilities for 3Tx inter-band EN-DC new test cases                                                                                | 18.5.0 |
| 2024-12 | RAN#106 | R5-246930 | 0509 | - | F | Addition of test applicabilities for Cell DTX and NES-based CHO test cases                                                                         | 18.5.0 |
| 2024-12 | RAN#106 | R5-246946 | 0510 | - | F | Addition of test applicabilities for enhanced DMRS and eType II Codebook test cases                                                                | 18.5.0 |
| 2024-12 | RAN#106 | R5-246975 | 0512 | - | F | Update to applicability statements of less than 5 MHz test cases                                                                                   | 18.5.0 |
| 2024-12 | RAN#106 | R5-246982 | 0513 | - | F | Update to applicability for downlink and uplink MIMO evolution test cases                                                                          | 18.5.0 |

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|---------|---------|-----------|------|---|---|-----------------------------------------------------------------------------------------------------------|--------|
| 2024-12 | RAN#106 | R5-247009 | 0514 | - | F | Updating test applicability for Spurious emission UE co-ex testing for band combo                         | 18.5.0 |
| 2024-12 | RAN#106 | R5-247024 | 0515 | - | F | Updating testing applicability branch for 8Rx                                                             | 18.5.0 |
| 2024-12 | RAN#106 | R5-247147 | 0518 | - | F | Applicability update for DEMOD FR2 test cases for different power class                                   | 18.5.0 |
| 2024-12 | RAN#106 | R5-247150 | 0519 | - | F | applicability update for DEMOD NR-NTN tests                                                               | 18.5.0 |
| 2024-12 | RAN#106 | R5-247213 | 0520 | - | F | Update of test applicability for eRedCap RF test cases                                                    | 18.5.0 |
| 2024-12 | RAN#106 | R5-247216 | 0521 | - | F | Addition of applicability for new eRedCap test cases                                                      | 18.5.0 |
| 2024-12 | RAN#106 | R5-247341 | 0525 | - | F | Update of applicability of FR2 SISO and MIMO test cases                                                   | 18.5.0 |
| 2024-12 | RAN#106 | R5-247441 | 0529 | - | F | Update to applicability for NR V2X test cases                                                             | 18.5.0 |
| 2024-12 | RAN#106 | R5-247479 | 0531 | - | F | Applicability of NES triggering conditional handover test cases                                           | 18.5.0 |
| 2024-12 | RAN#106 | R5-247688 | 0517 | 2 | F | Update to applicability of 5G test cases                                                                  | 18.5.0 |
| 2024-12 | RAN#106 | R5-247816 | 0526 | 1 | F | Adding applicability for ATG test cases                                                                   | 18.5.0 |
| 2024-12 | RAN#106 | R5-247817 | 0535 | 1 | F | Applicability spec update to add PDSCH Phy link adaptation cases                                          | 18.5.0 |
| 2024-12 | RAN#106 | R5-247818 | 0516 | 1 | F | Correcting test applicability for FR1 switching time mask test cases                                      | 18.5.0 |
| 2024-12 | RAN#106 | R5-247819 | 0490 | 1 | F | Update to applicability for some LTM test cases                                                           | 18.5.0 |
| 2024-12 | RAN#106 | R5-247820 | 0532 | 1 | F | Applicability of RACH-based LTM PSCell switch test cases                                                  | 18.5.0 |
| 2024-12 | RAN#106 | R5-247821 | 0505 | 1 | F | Correction to applicability of RRM test 6.6.2.9                                                           | 18.5.0 |
| 2024-12 | RAN#106 | R5-247822 | 0533 | 1 | F | Applicability correction for RRM enh TC 5.5.7.1                                                           | 18.5.0 |
| 2024-12 | RAN#106 | R5-247823 | 0504 | 1 | F | Update to NR-U test applicability                                                                         | 18.5.0 |
| 2024-12 | RAN#106 | R5-247824 | 0506 | 1 | F | Correction to applicability of RRM test 16.6.2.9                                                          | 18.5.0 |
| 2024-12 | RAN#106 | R5-247825 | 0530 | 1 | F | Applicability of NRU measurement test cases                                                               | 18.5.0 |
| 2024-12 | RAN#106 | R5-247826 | 0522 | 1 | F | Update of applicability for RRM FR2 test cases including PC1                                              | 18.5.0 |
| 2024-12 | RAN#106 | R5-247827 | 0524 | 1 | F | Update of applicability for RRM RedCap SS-RSRP test cases                                                 | 18.5.0 |
| 2024-12 | RAN#106 | R5-247828 | 0528 | 1 | F | Update condition for CA HST-SFN test cases                                                                | 18.5.0 |
| 2024-12 | RAN#106 | R5-247829 | 0503 | 1 | F | Update to NR-NTN test applicability                                                                       | 18.5.0 |
| 2024-12 | RAN#106 | R5-247838 | 0494 | 1 | F | Update to R18 ATG TCs applicability                                                                       | 18.5.0 |
| 2024-12 | RAN#106 | R5-247847 | 0523 | 1 | F | Update of applicability for RRM RedCap test cases                                                         | 18.5.0 |
| 2024-12 | RAN#106 | R5-247975 | 0495 | 1 | F | Update to R16 NR CADC configuration test cases applicability                                              | 18.5.0 |
| 2025-03 | RAN#107 | R5-250057 | 0537 | - | F | Editorial corrections of FR1 LTM test cases title                                                         | 18.6.0 |
| 2025-03 | RAN#107 | R5-250275 | 0543 | - | F | Addition of test applicability for measurement gap enhancements test cases                                | 18.6.0 |
| 2025-03 | RAN#107 | R5-250410 | 0544 | - | F | Addition of enhanced receiver type 2 test case applicability                                              | 18.6.0 |
| 2025-03 | RAN#107 | R5-250477 | 0545 | - | F | Addition of test applicability for NR SA FR1 SSB based RLM in-sync with 3 MHz channel bandwidth test case | 18.6.0 |
| 2025-03 | RAN#107 | R5-250532 | 0549 | - | F | Update to applicability for Less than 5MHz BW test cases                                                  | 18.6.0 |
| 2025-03 | RAN#107 | R5-250553 | 0550 | - | F | applicability update for link adaptation demod test cases                                                 | 18.6.0 |
| 2025-03 | RAN#107 | R5-250561 | 0551 | - | F | Applicability update for NR-U test cases                                                                  | 18.6.0 |
| 2025-03 | RAN#107 | R5-250641 | 0552 | - | F | Addition of applicability for new test case 5.3.2.1.7                                                     | 18.6.0 |

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|---------|---------|-----------|------|---|---|----------------------------------------------------------------------------------------|--------|
| 2025-03 | RAN#107 | R5-250652 | 0554 | - | F | Updates of NR-U test cases in 38.522                                                   | 18.6.0 |
| 2025-03 | RAN#107 | R5-250657 | 0555 | - | F | Update to additional information of test cases for NR-U                                | 18.6.0 |
| 2025-03 | RAN#107 | R5-250666 | 0556 | - | F | Include applicability for CQI reporting with Table 4 test cases                        | 18.6.0 |
| 2025-03 | RAN#107 | R5-250708 | 0558 | - | F | Addition of applicability for RedCap demod test cases                                  | 18.6.0 |
| 2025-03 | RAN#107 | R5-250752 | 0559 | - | F | Addition of applicabilities for a bunch of 3Tx inter-band EN-DC test cases             | 18.6.0 |
| 2025-03 | RAN#107 | R5-250774 | 0560 | - | F | Correction to applicability of FR1 and FR2 NR SA RRM test cases                        | 18.6.0 |
| 2025-03 | RAN#107 | R5-250809 | 0562 | - | F | Addition of applicability for 4.5.3.11 SSB-less SCell activation                       | 18.6.0 |
| 2025-03 | RAN#107 | R5-250815 | 0563 | - | F | Addition of applicability of new test case for NR UE Transmit Timing Test              | 18.6.0 |
| 2025-03 | RAN#107 | R5-250818 | 0564 | - | F | Correction to applicability condition for uplink full power test cases                 | 18.6.0 |
| 2025-03 | RAN#107 | R5-250823 | 0565 | - | F | Addition of applicability for MCE RRM test case                                        | 18.6.0 |
| 2025-03 | RAN#107 | R5-250863 | 0566 | - | F | applicability update for HST-DPS test cases                                            | 18.6.0 |
| 2025-03 | RAN#107 | R5-250877 | 0567 | - | F | Update of applicability for RRM FR2 PC1 random access test cases                       | 18.6.0 |
| 2025-03 | RAN#107 | R5-251010 | 0568 | - | F | Applicability of MG enhancement test cases                                             | 18.6.0 |
| 2025-03 | RAN#107 | R5-251011 | 0569 | - | F | Applicability of rel-18 mobility enhancements test cases                               | 18.6.0 |
| 2025-03 | RAN#107 | R5-251047 | 0572 | - | F | Update and corrections of applicability for RRM NRU SA FR1 test cases                  | 18.6.0 |
| 2025-03 | RAN#107 | R5-251067 | 0573 | - | F | Updates on 4.1.1 for applicability of RF SA FR1 conformance test cases for 4Rx Refsens | 18.6.0 |
| 2025-03 | RAN#107 | R5-251188 | 0576 | - | F | Update to NR-NTN test applicability                                                    | 18.6.0 |
| 2025-03 | RAN#107 | R5-251189 | 0577 | - | F | Update to NR-U test applicability                                                      | 18.6.0 |
| 2025-03 | RAN#107 | R5-251212 | 0578 | - | F | Applicability for REFSENS power level test for XR Ues                                  | 18.6.0 |
| 2025-03 | RAN#107 | R5-251216 | 0579 | - | F | Applicability for 2AoA spherical coverage test                                         | 18.6.0 |
| 2025-03 | RAN#107 | R5-251509 | 0574 | 1 | F | Update to applicability for NR V2X test cases                                          | 18.6.0 |
| 2025-03 | RAN#107 | R5-251664 | 0546 | 1 | F | Addition of test applicability for RRM NES test cases                                  | 18.6.0 |
| 2025-03 | RAN#107 | R5-251665 | 0570 | 1 | F | Applicability of NES Conditional handover test cases                                   | 18.6.0 |
| 2025-03 | RAN#107 | R5-251666 | 0538 | 1 | F | Update to R18 ATG TCs applicability                                                    | 18.6.0 |
| 2025-03 | RAN#107 | R5-251667 | 0548 | 1 | F | Update to applicability for FR2 LTM test cases                                         | 18.6.0 |
| 2025-03 | RAN#107 | R5-251668 | 0553 | 1 | F | Addition of eRedCap test case 6.2.1.2.2.2 and additional conditions                    | 18.6.0 |
| 2025-03 | RAN#107 | R5-251669 | 0547 | 1 | F | Addition of test applicability statements for multiRx test cases                       | 18.6.0 |
| 2025-03 | RAN#107 | R5-251670 | 0542 | 1 | F | Update to applicability of 5G TCs                                                      | 18.6.0 |
| 2025-03 | RAN#107 | R5-251679 | 0575 | 1 | F | Update to applicability for NR V2X test cases                                          | 18.6.0 |
| 2025-03 | RAN#107 | R5-251697 | 0571 | 1 | F | Update of tested bands selection criteria for RedCap UE supporting HD FDD              | 18.6.0 |
| 2025-06 | RAN#108 | R5-251845 | 0581 | - | F | Correction of test applicability for NR SA FR1 RLM in-sync 3 MHz bandwidth test case   | 18.7.0 |
| 2025-06 | RAN#108 | R5-251907 | 0584 | - | F | Add applicability for enhanced receiver type 2 cases for FR1 FDD 4Rx                   | 18.7.0 |
| 2025-06 | RAN#108 | R5-251908 | 0585 | - | F | Add applicability for Rel-18 enhanced DMRS for FR1 TDD 4Rx                             | 18.7.0 |

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|---------|---------|-----------|------|---|---|----------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 2025-06 | RAN#108 | R5-251919 | 0587 | - | F | Update to applicability for NR FR1 needForGap test cases                                                                                     | 18.7.0 |
| 2025-06 | RAN#108 | R5-252018 | 0588 | - | F | Update of test applicability for V2X                                                                                                         | 18.7.0 |
| 2025-06 | RAN#108 | R5-252131 | 0594 | - | F | Test applicability update for FR1 test case 6.2D.3                                                                                           | 18.7.0 |
| 2025-06 | RAN#108 | R5-252181 | 0595 | - | F | Addition of test applicability statements for CHO test cases                                                                                 | 18.7.0 |
| 2025-06 | RAN#108 | R5-252558 | 0601 | - | F | Addition of applicability for new eRedCap test cases                                                                                         | 18.7.0 |
| 2025-06 | RAN#108 | R5-252559 | 0602 | - | F | Update of test case 5.3.2.1.7                                                                                                                | 18.7.0 |
| 2025-06 | RAN#108 | R5-252560 | 0603 | - | F | Removing note1 from completed RedCap test cases                                                                                              | 18.7.0 |
| 2025-06 | RAN#108 | R5-252561 | 0604 | - | F | Correcting condition in NR-U test case 6.2A.4.1.1                                                                                            | 18.7.0 |
| 2025-06 | RAN#108 | R5-252657 | 0605 | - | F | Correction to applicability of FR1 and FR2 NR MUSIM RRM test cases                                                                           | 18.7.0 |
| 2025-06 | RAN#108 | R5-252709 | 0607 | - | F | Addition of applicability for MG_enh RRM test cases                                                                                          | 18.7.0 |
| 2025-06 | RAN#108 | R5-252778 | 0608 | - | F | Applicability correction of NES triggering conditional handover test case 7.3.3.3                                                            | 18.7.0 |
| 2025-06 | RAN#108 | R5-252963 | 0614 | - | F | Update to NR-NTN test applicability                                                                                                          | 18.7.0 |
| 2025-06 | RAN#108 | R5-252989 | 0615 | - | F | Applicability spec update to add FR2 Multi-Rx PDSCH test cases                                                                               | 18.7.0 |
| 2025-06 | RAN#108 | R5-253000 | 0616 | - | F | Applicability for REFSSENS power level test for XR UEs                                                                                       | 18.7.0 |
| 2025-06 | RAN#108 | R5-253584 | 0589 | 1 | F | Update to R18 ATG TCs applicability                                                                                                          | 18.7.0 |
| 2025-06 | RAN#108 | R5-253586 | 0590 | 1 | F | Update to R16 NR CADC configuration test cases applicability                                                                                 | 18.7.0 |
| 2025-06 | RAN#108 | R5-253587 | 0586 | 1 | F | Removal of NOTE1 for FR2 256QAM CQI reporting test case                                                                                      | 18.7.0 |
| 2025-06 | RAN#108 | R5-253588 | 0599 | 1 | F | Adding test applicability for new 4Tx test cases                                                                                             | 18.7.0 |
| 2025-06 | RAN#108 | R5-253590 | 0598 | 1 | F | Addition of applicabilities for unified TCI mTRP test cases                                                                                  | 18.7.0 |
| 2025-06 | RAN#108 | R5-253591 | 0580 | 1 | F | Update to R18 LTM test applicability                                                                                                         | 18.7.0 |
| 2025-06 | RAN#108 | R5-253592 | 0609 | 1 | F | Applicability correction of mobility enhancements test cases                                                                                 | 18.7.0 |
| 2025-06 | RAN#108 | R5-253613 | 0597 | 1 | F | Addition of applicability for new test case for variable Tx-Rx spacing for NR NTN bands                                                      | 18.7.0 |
| 2025-06 | RAN#108 | R5-253249 | 0600 | 2 | F | Correction to test applicability of PMI test cases with 16Tx or 32Tx of CSI-RS                                                               | 18.7.0 |
| 2025-06 | RAN#108 | -         | -    | - | - | Administrative release upgrade to match the release of 3GPP TS 38.521-1 which was upgraded at RAN#108 to Rel-19 due to Rel-19 relevant CR(s) | 19.0.0 |
| 2025-09 | RAN#109 | R5-253731 | 0617 | - | F | Update Test applicability for NR NTN RA TCs                                                                                                  | 19.1.0 |
| 2025-09 | RAN#109 | R5-253747 | 0618 | - | F | Update to the applicability of NES RRM TC 6.3.3.6 and 6.3.3.7                                                                                | 19.1.0 |
| 2025-09 | RAN#109 | R5-253836 | 0620 | - | F | Addition of Applicability for EVM equalizer spectrum flatness for FR2 CA                                                                     | 19.1.0 |
| 2025-09 | RAN#109 | R5-254245 | 0631 | - | F | Addition of applicability for test case 9.4B.1.1A                                                                                            | 19.1.0 |
| 2025-09 | RAN#109 | R5-254247 | 0632 | - | F | Addition of applicability for test case 14.2.2.3.1                                                                                           | 19.1.0 |
| 2025-09 | RAN#109 | R5-254379 | 0634 | - | F | Addition of NR NTN power control test cases                                                                                                  | 19.1.0 |
| 2025-09 | RAN#109 | R5-254392 | 0635 | - | F | Addition of test applicability statement for BFD and LR test case for a UE operating on a PCell with 3 MHz BW                                | 19.1.0 |
| 2025-09 | RAN#109 | R5-254406 | 0636 | - | F | Update of applicability for A-MPR, A-SEM and UTRA ACLR for UL MIMO                                                                           | 19.1.0 |
| 2025-09 | RAN#109 | R5-254464 | 0637 | - | F | Update of applicability condition for RRM test case 6.5.13.1                                                                                 | 19.1.0 |

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| 2025-09 | RAN#109 | R5-254625 | 0641 | - | F | Addition of applicability of FR1 time mask for switching test cases                                                  | 19.1.0 |
| 2025-09 | RAN#109 | R5-254642 | 0642 | - | F | Addition of new eRedCap test cases in 38.522                                                                         | 19.1.0 |
| 2025-09 | RAN#109 | R5-254643 | 0643 | - | F | Addition of new test case in 38.522                                                                                  | 19.1.0 |
| 2025-09 | RAN#109 | R5-254742 | 0648 | - | F | Correction to applicable release of 16Tx or 32Tx PMI reporting                                                       | 19.1.0 |
| 2025-09 | RAN#109 | R5-254770 | 0649 | - | F | Updating test applicability for V2X test cases                                                                       | 19.1.0 |
| 2025-09 | RAN#109 | R5-254816 | 0650 | - | F | Update to applicability of the test case for variable Tx-Rx spacing for NR NTN bands                                 | 19.1.0 |
| 2025-09 | RAN#109 | R5-254842 | 0651 | - | F | Update to r18 NR-NTN test applicability                                                                              | 19.1.0 |
| 2025-09 | RAN#109 | R5-254845 | 0654 | - | F | Applicability update for NR-U test cases                                                                             | 19.1.0 |
| 2025-09 | RAN#109 | R5-254893 | 0657 | - | F | Applicability updates REFSSENS power level test for XR UEs                                                           | 19.1.0 |
| 2025-09 | RAN#109 | R5-255099 | 0647 | 2 | F | Applicability of E-UTRA - NR SA FR1 E-UTRA cell re-selection to higher-priority NR target cell for 2 Rx UE test case | 19.1.0 |
| 2025-09 | RAN#109 | R5-255295 | 0629 | 1 | F | Additional of applicability of RRM TC 14.1.11 and TC 14.1.12 in TS 38.522                                            | 19.1.0 |
| 2025-09 | RAN#109 | R5-255305 | 0626 | 1 | F | Introduction of Applicabilities for eRedCap PMI test cases                                                           | 19.1.0 |
| 2025-09 | RAN#109 | R5-255317 | 0639 | 1 | F | Updates of test applicability for LTM FR1 test cases                                                                 | 19.1.0 |
| 2025-09 | RAN#109 | R5-255336 | 0628 | 1 | F | Adding test applicability for new 4Tx test cases                                                                     | 19.1.0 |
| 2025-09 | RAN#109 | R5-255337 | 0630 | 1 | F | Addition of applicability for test case 5.3.1.2.1                                                                    | 19.1.0 |
| 2025-09 | RAN#109 | R5-255338 | 0625 | 1 | F | Update to applicability of 5G TCs                                                                                    | 19.1.0 |
| 2025-09 | RAN#109 | R5-255341 | 0621 | 1 | F | Update to applicability of 5G ATG TCs                                                                                | 19.1.0 |
| 2025-09 | RAN#109 | R5-255356 | 0638 | 1 | F | Correction to applicabilities related to 2-layer MIMO capabilities                                                   | 19.1.0 |
| 2025-09 | RAN#109 | R5-255362 | 0652 | 1 | F | Update to NR-NTN test applicability                                                                                  | 19.1.0 |
| 2025-09 | RAN#109 | R5-255395 | 0656 | 1 | F | Applicability updates for 2AoA spherical coverage test                                                               | 19.1.0 |
| 2025-09 | RAN#109 | R5-255406 | 0627 | 1 | F | Confirmation of Applicability for PMI test cases                                                                     | 19.1.0 |
| 2025-09 | RAN#109 | R5-255418 | 0653 | 1 | F | Update to applicability of gap-based RRM FR2 tests                                                                   | 19.1.0 |

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# History

| Document history |              |             |
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| V19.1.0          | October 2025 | Publication |
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