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Technical Specification

**LTE;
Evolved Universal Terrestrial Radio Access (E-UTRA);
Requirements on User Equipments (UEs)
supporting a release-independent frequency band
(3GPP TS 36.307 version 10.6.0 Release 10)**



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Contents

Intellectual Property Rights	2
Foreword.....	2
Foreword.....	6
1 Scope	7
2 References	7
3 Definitions and Abbreviations.....	7
3.1 Definitions	7
3.2 Abbreviations	7
4 Void.....	8
5 Void.....	8
6 Void.....	8
7 Void.....	8
8 Void.....	8
9 Void.....	8
10 Void.....	8
11 Void.....	8
12 Void.....	8
13 Void.....	9
14 Void.....	9
15 Band 26 Independent of Release	9
15.1 Band 26 UE	9
15.1.1 RF Requirements	9
15.1.2 RRM Requirements	9
16 Band 27 Independent of Release	10
16.1 Band 27 UE	10
16.1.1 RF Requirements	10
16.1.2 RRM Requirements	10
17 Band 28 Independent of Release	10
17.1 Band 28 UE	10
17.1.1 RF Requirements	11
17.1.2 RRM Requirements	11
18 Band 44 Independent of Release	11
18.1 Band 44 UE	11
18.1.1 RF Requirements	11
18.1.2 RRM Requirements	12
19 CA configuration CA_41C Independent of Release	12
19.1 Band 41 UE	12
19.1.1 RF Requirements	12
19.1.2 RRM Requirements	13
20 CA configuration CA_1A-19A Independent of Release	13
20.1 CA_1A-19A UE	13
20.1.1 RF Requirements	13
20.1.2 RRM Requirements	14

21	CA configuration CA_7C Independent of Release	14
21.1	CA_7C UE	14
21.1.1	RF Requirements	14
21.1.2	RRM Requirements	14
22	CA configuration CA_38C Independent of Release	15
22.1	Band 38 UE	15
22.1.1	RF Requirements	15
22.1.2	RRM Requirements	15
23	CA configuration CA_1A-18A Independent of Release	15
23.1	CA_1A-18A UE	15
23.1.1	RF Requirements	16
23.1.2	RRM Requirements	16
24	CA configuration CA_1A-21A Independent of Release	16
24.1	CA_1A-21A UE	16
24.1.1	RF Requirements	16
24.1.2	RRM Requirements	16
25	CA configuration CA_3A-5A Independent of Release	17
25.1	CA_3A-5A UE	17
25.1.1	RF Requirements	17
25.1.2	RRM Requirements	17
26	CA configuration CA_3A-7A Independent of Release	17
26.1	CA_3A-7A UE	17
26.1.1	RF Requirements	17
26.1.2	RRM Requirements	18
27	CA configuration CA_3A-20A Independent of Release	18
27.1	CA_3A-20A UE	18
27.1.1	RF Requirements	18
27.1.2	RRM Requirements	18
28	CA configuration CA_7A-20A Independent of Release	19
28.1	CA_7A-20A UE	19
28.1.1	RF Requirements	19
28.1.2	RRM Requirements	19
29	CA configuration CA_8A-20A Independent of Release	19
29.1	CA_8A-20A UE	19
29.1.1	RF Requirements	19
29.1.2	RRM Requirements	20
30	CA configuration CA_2A-17A Independent of Release	20
30.1	CA_2A-17A UE	20
30.1.1	RF Requirements	20
30.1.2	RRM Requirements	20
31	CA configuration CA_2A-29A Independent of Release	21
31.1	CA_2A-29A UE	21
31.1.1	RF Requirements	21
31.1.2	RRM Requirements	21
32	CA configuration CA_4A-29A Independent of Release	21
32.1	CA_4A-29A UE	21
32.1.1	RF Requirements	22
32.1.2	RRM Requirements	22
33	CA configuration CA_3A-8A Independent of Release	22
33.1	CA_3A-8A UE	22
33.1.1	RF Requirements	22
33.1.2	RRM Requirements	22
34	CA configuration CA_4A-5A Independent of Release	23

34.1	CA_4A-5A UE	23
34.1.1	RF Requirements	23
34.1.2	RRM Requirements	23
35	CA configuration CA_4A-12A Independent of Release	23
35.1	CA_4A-12A UE	23
35.1.1	RF Requirements	23
35.1.2	RRM Requirements	24
36	CA configuration CA_4A-13A Independent of Release	24
36.1	CA_4A-13A UE	24
36.1.1	RF Requirements	24
36.1.2	RRM Requirements	24
37	CA configuration CA_4A-17A Independent of Release	25
37.1	CA_4A-17A UE	25
37.1.1	RF Requirements	25
37.1.2	RRM Requirements	25
38	CA configuration CA_5A-12A Independent of Release	25
38.1	CA_5A-12A UE	25
38.1.1	RF Requirements	25
38.1.2	RRM Requirements	26
39	CA configuration CA_5A-17A Independent of Release	26
39.1	CA_5A-17A UE	26
39.1.1	RF Requirements	26
39.1.2	RRM Requirements	26
40	CA configuration CA_4A-7A Independent of Release	27
40.1	CA_4A-7A UE	27
40.1.1	RF Requirements	27
40.1.2	RRM Requirements	27
41	CA configuration CA_11A-18A Independent of Release	27
41.1	CA_11A-18A UE	27
41.1.1	RF Requirements	27
41.1.2	RRM Requirements	28
Annex A (informative):	Frequency arrangement for overlapping operating bands	29
Annex B (informative):	Change history	30
History		32

Foreword

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1 Scope

The present document specifies requirements on UEs supporting a frequency band and inter-band/intra-band CA configurations that are independent of release. TSG-RAN has agreed that the standardisation of new frequency bands may be independent of a release, and that the standardisations of new inter-band/intra-band CA configurations also may be independent of a release for Rel-10 upwards. However, in order to implement a UE that conforms to a particular release but supports a band of operation or carrier aggregation of particular inter-band/intra-band CA configurations that is specified in a later release, it is necessary to specify some extra requirements.

For example, Band 19 is contained in the Release 9 specifications. In order to implement a UE conforming to Release 8 but supporting Band 19, it is necessary for the UE to additionally conform to some parts of the Release 9 specifications, such as the radio frequency and radio resource management requirements for the Band 19.

For another example on carrier aggregations, CA configuration CA_1A-19A is contained in the Release 11 specifications. In order to implement a UE conforming to Release 10 but supporting the CA configuration CA_1A-19A, it is necessary for the UE to additionally conform to some parts of the Release 11 specifications, such as the radio frequency and radio resource management requirements for the CA configuration CA_1A-19A.

All frequency bands are fully specified in this release of the specifications. The present document does not contain any requirements for UEs supporting frequency bands independent of release.

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*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 36.101 (Release 11): "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) Radio Transmission and Reception".
- [3] 3GPP TS 36.133 (Release 11): "Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements for Support of Radio Resource Management".

3 Definitions and Abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in [1] apply.

3.2 Abbreviations

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

CA Carrier Aggregation

FDD	Frequency Division Duplex
RRC	Radio Resource Control
RRM	Radio Resource Management
TDD	Time Division Duplex
UE	User Equipment

4 Void

5 Void

6 Void

7 Void

8 Void

9 Void

10 Void

11 Void

12 Void

13 Void

14 Void

15 Band 26 Independent of Release

Band 26 is specified in Release 11 but is defined as a release-independent frequency band. This approach aligns the Band 26 band with other frequency bands when considering features that have to be supported in different releases.

15.1 Band 26 UE

UEs that conform to Release 10 and support Band 26 shall support the following requirements in Release 11.

15.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 26 specified [2]. The requirements are:

Table 15.1.1-1: RF Requirements for Band 26 UE

Section / Clause	Description
5.5	Operating bands
5.6	Channel bandwidth
5.7	Channel arrangement
6.2	Transmit power
6.3	Output power dynamics
6.6	Output RF spectrum emissions
6.7	Transmit intermodulation
7.3	Reference sensitivity power level
7.4	Maximum input level
7.5	Adjacent Channel Selectivity (ACS)
7.6	Blocking characteristics
7.7	Spurious response
7.8	Intermodulation characteristics

15.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 26 specified in [3]. These requirements are:

Table 15.1.2-1: RRM Requirements for Band 26 UE

Section / Clause	Description
4	E-UTRAN RRC_IDLE state mobility
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.
A.9	Measurement Performances for UE Test Cases

16 Band 27 Independent of Release

Band 27 is specified in Release 11, but is defined as a release-independent frequency band. This approach aligns the Band 27 band with other frequency bands when considering features that have to be supported in different releases.

16.1 Band 27 UE

UEs that conform to Release 10 and support Band 27 shall support the following requirements in Release 11.

16.1.1 RF Requirements

The UE shall comply with the Release 11 RF requirements for Band 27 specified [2]. The requirements are:

Table 16.1.1-1: RF Requirements for Band 27 UE

Section / Clause	Description
5.5	Operating bands
5.6	Channel bandwidth
5.7	Channel arrangement
6.2	Transmit power
6.3	Output power dynamics
6.6	Output RF spectrum emissions
6.7	Transmit intermodulation
7.3	Reference sensitivity power level
7.4	Maximum input level
7.5	Adjacent Channel Selectivity (ACS)
7.6	Blocking characteristics
7.7	Spurious response
7.8	Intermodulation characteristics

16.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 27 specified in [3]. These requirements are:

Table 16.1.2-1: RRM Requirements for Band 27 UE

Section / Clause	Description
4	E-UTRAN RRC_IDLE state mobility
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.
A.9	Measurement Performances for UE Test Cases

17 Band 28 Independent of Release

Band 28 is specified in Release 11 but is defined as a release-independent frequency band. This approach aligns the Band 28 band with other frequency bands when considering features that have to be supported in different releases.

17.1 Band 28 UE

UEs that conform to Release 8 and support Band 28 shall support the following requirements in Release 11.

17.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 28 specified [2]. The requirements are:

Table 17.1.1-1: RF Requirements for Band 28 UE

Section / Clause	Description
5.5	Operating bands
5.6	Channel bandwidth
5.7	Channel arrangement
6.2	Transmit power
6.3	Output power dynamics
6.6	Output RF spectrum emissions
6.7	Transmit intermodulation
7.3	Reference sensitivity power level
7.4	Maximum input level
7.5	Adjacent Channel Selectivity (ACS)
7.6	Blocking characteristics
7.7	Spurious response
7.8	Intermodulation characteristics

17.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 28 specified in [3]. These requirements are:

Table 17.1.2-1: RRM Requirements for Band 28 UE

Section / Clause	Description
4	E-UTRAN RRC_IDLE state mobility
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.
A.9	Measurement Performances for UE Test Cases

18 Band 44 Independent of Release

Band 44 is specified in Release 11 but is defined as a release-independent frequency band. This approach aligns the Band 44 band with other frequency bands when considering features that have to be supported in different releases.

18.1 Band 44 UE

UEs that conform to Release 8 and support Band 44 shall support the following requirements in Release 11.

18.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 44 specified [2]. The requirements are:

Table 18.1.1-1: RF Requirements for Band 44 UE

Section / Clause	Description
5.5	Operating bands
5.6	Channel bandwidth
5.7	Channel arrangement
6.2	Transmit power
6.3	Output power dynamics
6.6	Output RF spectrum emissions
6.7	Transmit intermodulation
7.3	Reference sensitivity power level
7.4	Maximum input level
7.5	Adjacent Channel Selectivity (ACS)
7.6	Blocking characteristics
7.7	Spurious response
7.8	Intermodulation characteristics

18.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 44 specified in [3]. These requirements are:

Table 18.1.2-1: RRM Requirements for Band 44 UE

Section / Clause	Description
4	E-UTRAN RRC_IDLE state mobility
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.
A.9	Measurement Performances for UE Test Cases

19 CA configuration CA_41C Independent of Release

CA_41C is specified in Release 11 but is defined as a release-independent E-UTRA CA configuration.

19.1 Band 41 UE

UEs that conform to Release 10 and support CA_41C shall support the following requirements in Release 11 for both one uplink and simultaneous transmission on two uplinks.

19.1.1 RF Requirements

The UE shall comply with the following RF requirements for CA_41C specified in [2]. These requirements are:

Table 19.1.1-1: RF Requirements for CA_41C UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A.1	Channel bandwidths per operating band for CA
6.2.2A	UE maximum output power for intra-band contiguous CA
6.2.3A	UE maximum output power for modulation/channel bandwidth for CA
6.2.4A	UE maximum output power with additional requirements for CA
6.2.5A	Configured transmitted power for CA
6.6.2.1A	Spectrum emission mask for CA
6.6.2.2A	Additional spectrum emission mask for C A
6.6.3.2A	Spurious emission band UE co-existence for CA
7.3.1A	Reference sensitivity power level minimum requirements for CA
7.6.1.1A	In-band blocking minimum requirements for CA
7.6.2.1A	Out-of-band blocking minimum requirements for CA

19.1.2 RRM Requirements

The UE shall comply with the following RRM Requirements for CA_41C specified in [3]. These requirements are:

Table 19.1.1-2: RRM Requirements for CA_41C UE

Section / Clause	Description
4	E-UTRAN RRC_IDLE state mobility
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.
A.9	Measurement Performances for UE Test Cases

20 CA configuration CA_1A-19A Independent of Release

CA configuration CA_1A-19A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

20.1 CA_1A-19A UE

UEs that conform to Release 10 and support CA_1A-19A shall support the following requirements in Release 11.

20.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_1A-19A specified in [2]. These requirements are:

Table 20.1.1-1: RF Requirements for CA_1A-19A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

20.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_1A-19A specified in [3]. These requirements are:

Table 16.1.2-1: RRM Requirements for CA_1A-19A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

21 CA configuration CA_7C Independent of Release

CA configuration CA_7C is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

21.1 CA_7C UE

UEs that conform to Release 10 and support CA_7C shall support the following requirements in Release 11.

21.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_7C specified in [2]. These requirements are:

Table 21.1.1-1: RF Requirements for CA_7C UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A.1	Channel bandwidths per operating band for CA
6.2.2A	UE maximum output power for intra-band contiguous CA
6.2.3A	UE maximum output power for modulation/channel bandwidth for CA
6.2.4A	UE maximum output power with additional requirements for CA
6.2.5A	Configured transmitted power for CA
6.6.2.1A	Spectrum emission mask for CA
6.6.3.2A	Spurious emission band UE co-existence for CA
7.3.1A	Reference sensitivity power level minimum requirements for CA
7.6.1.1A	In-band blocking minimum requirements for CA
7.6.2.1A	Out-of-band blocking minimum requirements for CA

21.1.2 RRM Requirements

The UE shall comply with the following RRM Requirements for CA_7C specified in [3]. These requirements are:

Table 21.1.1-2: RRM Requirements for CA_7C UE

Section / Clause	Description
4	E-UTRAN RRC_IDLE state mobility
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.
A.9	Measurement Performances for UE Test Cases

22 CA configuration CA_38C Independent of Release

CA_38C is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

22.1 Band 38 UE

UEs that conform to Release 10 and support CA_38C shall support the following requirements in Release 11 for both one uplink and simultaneous transmission on two uplinks.

22.1.1 RF Requirements

The UE shall comply with the following RF requirements for CA_38C specified in [2]. These requirements are:

Table 22.1.1-1: RF Requirements for CA_38C UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A.1	Channel bandwidths per operating band for CA
6.2.2A	UE maximum output power for intra-band contiguous CA
6.2.3A	UE maximum output power for modulation/channel bandwidth for CA
6.2.4A	UE maximum output power with additional requirements for CA
6.2.5A	Configured transmitted power for CA
6.6.2.1A	Spectrum emission mask for CA
6.6.3.2A	Spurious emission band UE co-existence for CA
7.3.1A	Reference sensitivity power level minimum requirements for CA
7.6.1.1A	In-band blocking minimum requirements for CA
7.6.2.1A	Out-of-band blocking minimum requirements for CA

22.1.2 RRM Requirements

The UE shall comply with the following RRM Requirements for CA_38C specified in [3]. These requirements are:

Table 22.1.2-1: RRM Requirements for CA_38C UE

Section / Clause	Description
4	E-UTRAN RRC_IDLE state mobility
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.
A.9	Measurement Performances for UE Test Cases

23 CA configuration CA_1A-18A Independent of Release

CA configuration CA_1A-18A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

23.1 CA_1A-18A UE

UEs that conform to Release 10 and support CA_1A-18A shall support the following requirements in Release 11.

23.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_1A-18A specified in [2]. These requirements are:

Table 23.1.1-1: RF Requirements for CA_1A-18A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

23.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_1A-18A specified in [3]. These requirements are:

Table 23.1.2-1: RRM Requirements for CA_1A-18A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

24 CA configuration CA_1A-21A Independent of Release

CA configuration CA_1A-21A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

24.1 CA_1A-21A UE

UEs that conform to Release 10 and support CA_1A-21A shall support the following requirements in Release 11.

24.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_1A-21A specified in [2]. These requirements are:

Table 24.1.1-1: RF Requirements for CA_1A-21A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

24.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_1A-21A specified in [3]. These requirements are:

Table 24.1.2-1: RRM Requirements for CA_1A-21A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

25 CA configuration CA_3A-5A Independent of Release

CA configuration CA_3A-5A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

25.1 CA_3A-5A UE

UEs that conform to Release 10 and support CA_3A-5A shall support the following requirements in Release 11.

25.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_3A-5A specified in [2]. These requirements are:

Table 25.1.1-1: RF Requirements for CA_3A-5A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

25.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_3A-5A specified in [3]. These requirements are:

Table 25.1.2-1: RRM Requirements for CA_3A-5A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

26 CA configuration CA_3A-7A Independent of Release

CA configuration CA_3A-7A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

26.1 CA_3A-7A UE

UEs that conform to Release 10 and support CA_3A-7A shall support the following requirements in Release 11.

26.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_3A-7A specified in [2]. These requirements are:

Table 26.1.1-1: RF Requirements for CA_3A-7A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

26.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_3A-7A specified in [3]. These requirements are:

Table 26.1.2-1: RRM Requirements for CA_3A-7A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

27 CA configuration CA_3A-20A Independent of Release

CA configuration CA_3A-20A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

27.1 CA_3A-20A UE

UEs that conform to Release 10 and support CA_3A-20A shall support the following requirements in Release 11.

27.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_3A-20A specified in [2]. These requirements are:

Table 27.1.1-1: RF Requirements for CA_3A-20A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

27.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_3A-20A specified in [3]. These requirements are:

Table 27.1.2-1: RRM Requirements for CA_3A-20A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

28 CA configuration CA_7A-20A Independent of Release

CA configuration CA_7A-20A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

28.1 CA_7A-20A UE

UEs that conform to Release 10 and support CA_7A-20A shall support the following requirements in Release 11.

28.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_7A-20A specified in [2]. These requirements are:

Table 28.1.1-1: RF Requirements for CA_7A-20A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

28.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_7A-20A specified in [3]. These requirements are:

Table 28.1.2-1: RRM Requirements for CA_7A-20A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

29 CA configuration CA_8A-20A Independent of Release

CA configuration CA_8A-20A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

29.1 CA_8A-20A UE

UEs that conform to Release 10 and support CA_8A-20A shall support the following requirements in Release 11.

29.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_8A-20A specified in [2]. These requirements are:

Table 29.1.1-1: RF Requirements for CA_8A-20A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

29.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_8A-20A specified in [3]. These requirements are:

Table 29.1.2-1: RRM Requirements for CA_8A-20A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

30 CA configuration CA_2A-17A Independent of Release

CA configuration CA_2A-17A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

30.1 CA_2A-17A UE

UEs that conform to Release 10 and support CA_2A-17A shall support the following requirements in Release 11.

30.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_2A-17A specified in [2]. These requirements are:

Table 30.1.1-1: RF Requirements for CA_2A-17A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

30.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_2A-17A specified in [3]. These requirements are:

Table 30.1.2-1: RRM Requirements for CA_2A-17A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

31 CA configuration CA_2A-29A Independent of Release

CA configuration CA_2A-29A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

31.1 CA_2A-29A UE

UEs that conform to Release 10 and support CA_2A-29A shall support the following requirements in Release 11.

31.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_2A-29A specified in [2]. These requirements are:

Table 31.1.1-1: RF Requirements for CA_2A-29A UE

Section / Clause	Description
5.5	Operating bands
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
5.7	Channel arrangement
6.2.5A	Configured transmitted Power for CA
7.3.1A	Reference sensitivity power level minimum requirements for CA
7.5.1A	ACS minimum requirements for CA
7.6.1.1A	In-band blocking minimum requirements for CA
7.7.1A	Spurious response for CA
7.8.1A	Intermodulation characteristics minimum requirement for CA

31.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_2A-29A specified in [3]. These requirements are:

Table 31.1.2-1: RRM Requirements for CA_2A-29A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

32 CA configuration CA_4A-29A Independent of Release

CA configuration CA_4A-29A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

32.1 CA_4A-29A UE

UEs that conform to Release 10 and support CA_4A-29A shall support the following requirements in Release 11.

32.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_4A-29A specified in [2]. These requirements are:

Table 32.1.1-1: RF Requirements for CA_4A-29A UE

Section / Clause	Description
5.5	Operating bands
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
5.7	Channel arrangement
6.2.5A	Configured transmitted Power for CA
7.3.1A	Reference sensitivity power level minimum requirements for CA
7.5.1A	ACS minimum requirements for CA
7.6.1.1A	In-band blocking minimum requirements for CA
7.7.1A	Spurious response for CA
7.8.1A	Intermodulation characteristics minimum requirement for CA

32.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_4A-29A specified in [3]. These requirements are:

Table 32.1.2-1: RRM Requirements for CA_4A-29A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

33 CA configuration CA_3A-8A Independent of Release

CA configuration CA_3A-8A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

33.1 CA_3A-8A UE

UEs that conform to Release 10 and support CA_3A-8A shall support the following requirements in Release 11.

33.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_3A-8A specified in [2]. These requirements are:

Table 33.1.1-1: RF Requirements for CA_3A-8A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

33.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_3A-8A specified in [3]. These requirements are:

Table 33.1.2-1: RRM Requirements for CA_3A-8A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

34 CA configuration CA_4A-5A Independent of Release

CA configuration CA_4A-5A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

34.1 CA_4A-5A UE

UEs that conform to Release 10 and support CA_4A-5A shall support the following requirements in Release 11.

34.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_4A-5A specified in [2]. These requirements are:

Table 34.1.1-1: RF Requirements for CA_4A-5A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

34.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_4A-5A specified in [3]. These requirements are:

Table 34.1.2-1: RRM Requirements for CA_4A-5A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

35 CA configuration CA_4A-12A Independent of Release

CA configuration CA_4A-12A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

35.1 CA_4A-12A UE

UEs that conform to Release 10 and support CA_4A-12A shall support the following requirements in Release 11.

35.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_4A-12A specified in [2]. These requirements are:

Table 35.1.1-1: RF Requirements for CA_4A-12A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

35.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_4A-12A specified in [3]. These requirements are:

Table 35.1.2-1: RRM Requirements for CA_4A-12A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

36 CA configuration CA_4A-13A Independent of Release

CA configuration CA_4A-13A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

36.1 CA_4A-13A UE

UEs that conform to Release 10 and support CA_4A-13A shall support the following requirements in Release 11.

36.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_4A-13A specified in [2]. These requirements are:

Table 36.1.1-1: RF Requirements for CA_4A-13A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

36.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_4A-13A specified in [3]. These requirements are:

Table 36.1.2-1: RRM Requirements for CA_4A-13A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

37 CA configuration CA_4A-17A Independent of Release

CA configuration CA_4A-17A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

37.1 CA_4A-17A UE

UEs that conform to Release 10 and support CA_4A-17A shall support the following requirements in Release 11.

37.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_4A-17A specified in [2]. These requirements are:

Table 37.1.1-1: RF Requirements for CA_4A-17A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

37.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_4A-17A specified in [3]. These requirements are:

Table 37.1.2-1: RRM Requirements for CA_4A-17A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

38 CA configuration CA_5A-12A Independent of Release

CA configuration CA_5A-12A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

38.1 CA_5A-12A UE

UEs that conform to Release 10 and support CA_5A-12A shall support the following requirements in Release 11.

38.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_5A-12A specified in [2]. These requirements are:

Table 38.1.1-1: RF Requirements for CA_5A-12A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

38.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_5A-12A specified in [3]. These requirements are:

Table 38.1.2-1: RRM Requirements for CA_5A-12A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

39 CA configuration CA_5A-17A Independent of Release

CA configuration CA_5A-17A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

39.1 CA_5A-17A UE

UEs that conform to Release 10 and support CA_5A-17A shall support the following requirements in Release 11.

39.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_5A-17A specified in [2]. These requirements are:

Table 39.1.1-1: RF Requirements for CA_5A-17A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

39.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_5A-17A specified in [3]. These requirements are:

Table 39.1.2-1: RRM Requirements for CA_5A-17A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

40 CA configuration CA_4A-7A Independent of Release

CA_4A-7A is specified in Release 11 but is defined as a release-independent E-UTRA CA configuration.

40.1 CA_4A-7A UE

UEs that conform to Release 10 and support CA_4A-7A shall support the following requirements in Release 11 for one uplink.

40.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_4A-7A specified in [2]. These requirements are:

Table 40.1.1-1: RF Requirements for CA_4A-7A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

40.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_4A-7A specified in [3]. These requirements are:

Table 40.1.2-1: RRM Requirements for CA_4A-7A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

41 CA configuration CA_11A-18A Independent of Release

CA configuration CA_11A-18A is specified in Release 11 but is defined as a release-independent CA configuration for Rel-10 upwards.

41.1 CA_11A-18A UE

UEs that conform to Release 10 and support CA_11A-18A shall support the following requirements in Release 11.

41.1.1 RF Requirements

The UE shall comply with the RF requirements for CA_11A-18A specified in [2]. These requirements are:

Table 41.1.1-1: RF Requirements for CA_11A-18A UE

Section / Clause	Description
5.5A	Operating bands for CA
5.6A1	Channel bandwidths per operating band for CA
6.2.5A	Configured transmitted Power for CA
7.3.1	Minimum requirements (QPSK)

41.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA_11A-18A specified in [3]. These requirements are:

Table 41.1.2-1: RRM Requirements for CA_11A-18A UE

Section / Clause	Description
8	UE Measurements Procedures in RRC_CONNECTED State
9	Measurement Performances for UE.

Annex A (informative): Frequency arrangement for overlapping operating bands

The following information is provided in order to assist a UE derive the DL EARFCN and UL EARFCN in a multi-band environment, in which multiple overlapping operating bands may be indicated in the fields *freqBandIndicator* and *multiBandInfoList* of SIB1.

The overlapping bands, independent of release, which may be indicated in a cell are shown in Table A-1 for applicable E-UTRA bands. The DL EARFCN and UL EARFCN are derived according to [2].

Table A-1: Overlapping bands (multi-band environments) for each E-UTRA band

E-UTRA Operating Band	Overlapping E-UTRA operating bands	Duplex Mode
2	25	FDD
3	9	FDD
4	10	FDD
5	18, 19, 26	FDD
9	3	FDD
10	4	FDD
12	17	FDD
17	12	FDD
18	5, 26, 27	FDD
19	5, 26	FDD
25	2	FDD
26	5, 18, 19, 27	FDD
27	18, 26	FDD
33	39	TDD
38	41	TDD
39	33	TDD
41	38	TDD

Annex B (informative): Change history

Table B.1: Change History

Date	TSG#	TSG Doc.	CR	Subject	Old	New
11-2009	RP#46	RP-091141		TS36.307 V0.1.0 approved by RAN (Originally in R4-095022)	-	0.1.0
02-2010	R4#54	R4-100419		For release 9 version, replace sections 4 to 6 as "Void" and add a new void section as section 7.	0.1.0	0.2.0
03-2010	RP#47	RP-100162		TS36.307 v1.0.0 for approval	0.2.0	1.0.0
03-2010	RP#47	RP-100162		Approved by RAN	1.0.0	9.0.0
09-2010	RP-49	RP-100927	2	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.307 V900	9.0.0	9.1.0
				Correction of section numbering	9.1.0	9.1.1
12-2010	RP-50	RP-101356	008	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.307	9.1.1	9.2.0
12-2010	RP-50	RP-101361	005	Introduction of L-band in TS 36.307	9.1.1	9.2.0
12-2010	RP-50	RP-101344	016	CR creating the rel-10 of the 36.307 specification	9.2.0	9.3.0
12-2010	RP-50	RP-101356	012	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.307	9.2.0	9.3.0
12-2010	RP-50			Raised to Rel-10 with no technical change	9.3.0	10.0.0
01-2011				Correction to history table	10.0.0	10.0.1
06-2011	RP-52	RP-110804	015	Add Expanded 1900 MHz Band (Band 25) in 36.307	10.0.1	10.1.0
06-2011	RP-52	RP-110812	022	Add 2GHz S-Band (Band 23) in 36.307 (Rel 10)	10.0.1	10.1.0
09-2011	RP-53	RP-111255	025	Add Band 22 for LTE/UMTS 3500 (FDD) to TS 36.307	10.1.0	10.2.0
03-2012	RP-55	RP-120305	028	Introduction of Band 26/XXVI to TS 36.307	10.2.0	10.3.0
2012-06	RP-56	RP-120778	036r1	Correction of references	10.3.0	10.4.0
2012-06	RP-56	RP-120789	042	Introduction of CA_1A-19A to TS 36.307	10.3.0	10.4.0
2012-06	RP-56	RP-120785	044r1	Backdating CA_41C to Rel-10	10.3.0	10.4.0
2012-06	RP-56	RP-120793	048	Introduction of APAC700(FDD) into TS 36.307 Rel.10	10.3.0	10.4.0
2012-06	RP-56	RP-120793	052	Introduction of APAC700(TDD) into TS 36.307 Rel.10	10.3.0	10.4.0
2012-06	RP-56	RP-120791	056	Introduction of e850_LB (Band 27) to TS 36.307	10.3.0	10.4.0
2012-09	RP-57	RP-121335	058	Introduction of CA_1A-21A to TS 36.307	10.4.0	10.5.0
2012-09	RP-57	RP-121337	060r1	TS 36.307 CR for CA_38	10.4.0	10.5.0
2012-09	RP-57	RP-121327	061	Introduction of CA_B7_B20 in 36.307	10.4.0	10.5.0
2012-09	RP-57	RP-121334	062r1	Add requirements for inter-band CA of B_1-18 in TS36.307	10.4.0	10.5.0
2012-09	RP-57	RP-121329	063	Introduction of CA band combination Band3 + Band5 to TS 36.307	10.4.0	10.5.0
2012-09	RP-57	RP-121338	064r1	36.307 CR for LTE_CA_B7	10.4.0	10.5.0
2012-09	RP-57	RP-121331	065	Introduction of CA_3A-20A to TS 36.307	10.4.0	10.5.0
2012-09	RP-57	RP-121333	066	Introduction of CA_8_20 RF requirements into TS36.307	10.4.0	10.5.0
2012-09	RP-57	RP-121295	069r1	Relation between EARFCN for overlapping bands with multiple FBI indication	10.4.0	10.5.0
2012-09	RP-57	RP-121324	071	Introduction of CA_B3_B7 in 36.307	10.4.0	10.5.0

2012-12	RP-58	RP-121884	080	Introduction of CA_3A-8A to TS 36.307	10.5.0	10.6.0
2012-12	RP-58	RP-121890	085	Introduction of CA_4A-5A into 36.307	10.5.0	10.6.0
2012-12	RP-58	RP-121889	087	Introduction of CA band combination Band4 + Band13 to TS 36.307 (Rel-10)	10.5.0	10.6.0
2012-12	RP-58	RP-121894	089	Introduction of CA_B5_B12 in 36.307	10.5.0	10.6.0
2012-12	RP-58	RP-121896	090	Introduction of Band 5 + Band 17 inter-band CA configuration into 36.307	10.5.0	10.6.0
2012-12	RP-58	RP-121887	094	Introduction of CA_4-12 into TS 36.307 (Rel-10)	10.5.0	10.6.0
2012-12	RP-58	RP-121882	096	[Rel-10] Introduction of inter-band CA_11-18 into TS36.307	10.5.0	10.6.0
2012-12	RP-58	RP-121861	098	Release-independent implementation of carrier aggregation configuration CA_4-7	10.5.0	10.6.0
2012-12	RP-58	RP-121901	100	Introduction of Band 29	10.5.0	10.6.0
2012-12	RP-58	RP-121719	0103	Introduction of CA band combination Band2 + Band17 to TS 36.307 (Rel-10)	10.5.0	10.6.0
2012-12	RP-58	RP-121721	0105	Introduction of CA band combination Band4 + Band17 to TS 36.307 (Rel-10)	10.5.0	10.6.0

History

Document history		
V10.0.1	January 2011	Publication
V10.1.0	June 2011	Publication
V10.2.0	November 2011	Publication
V10.3.0	April 2012	Publication
V10.4.0	July 2012	Publication
V10.5.0	November 2012	Publication
V10.6.0	February 2013	Publication