

# ETSI TS 136 307 V10.7.0 (2013-07)



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 10.7.0 Release 10)**



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Reference

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Keywords

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**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

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## Foreword

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## Foreword

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

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- 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.



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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.

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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*.

- [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".
- [4] 3GPP TS 36.101 (Release 12): "Evolved Universal Terrestrial Radio Access (E-UTRA); "User Equipment (UE) Radio Transmission and Reception".
- [5] 3GPP TS 36.133 (Release 12): "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            |

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4      Void

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5      Void

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6      Void

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7      Void

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8      Void

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9      Void

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10     Void

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11     Void

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## 12 Void

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## 13 Void

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## 14 Void

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## 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 10 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 10 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.                  |

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## 42 Band 30 Independent of Release

Band 30 is specified in Release 12 but is defined as a release-independent frequency band. This approach aligns the Band 30 band with other frequency bands when considering features that have to be supported in different releases.

### 42.1 Band 30 UE

UEs that conform to Release 10 and support Band 30 shall support the following requirements in Release 12.

#### 42.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 30 specified [4]. The requirements are:

**Table 42.1.1-1: RF Requirements for Band 30 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    |

#### 42.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 30 specified in [5]. These requirements are:

**Table 42.1.2-1: RRM Requirements for Band 30 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        |

## 43 Band 31 Independent of Release

Band 31 is specified in Release 12 but is defined as a release-independent frequency band. This approach aligns the Band 31 band with other frequency bands when considering features that have to be supported in different releases.

### 43.1 Band 31 UE

UEs that conform to Release 10 and support Band 31 shall support the following requirements in Release 12.

#### 43.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 31 specified [4]. The requirements are:

**Table 43.1.1-1: RF Requirements for Band 31 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    |

#### 43.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 31 specified in [5]. These requirements are:

**Table 43.1.2-1: RRM Requirements for Band 31 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        |

## 44 CA configuration CA\_1A-8A Independent of Release

CA configuration CA\_1A-8A is specified in Release 12 but is defined as a release-independent CA configuration for Rel-10 upwards.

### 44.1 CA\_1A-8A UE

UEs that conform to Release 10 and support CA\_1A-8A shall support the following requirements in Release 12.

#### 44.1.1 RF Requirements

The UE shall comply with the RF requirements for CA\_1A-8A specified in [4]. These requirements are:

**Table 44.1.1-1: RF Requirements for CA\_1A-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)                  |

#### 44.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA\_1A-8A specified in [5]. These requirements are:

**Table 44.1.2-1: RRM Requirements for CA\_1A-8A UE**

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

## 45 CA configuration CA\_2A-13A Independent of Release

CA configuration CA\_2A-13A is specified in Release 12 but is defined as a release-independent CA configuration for Rel-10 upwards.

### 45.1 CA\_2A-13A UE

UEs that conform to Release 10 and support CA\_2A-13A shall support the following requirements in Release 12.

#### 45.1.1 RF Requirements

The UE shall comply with the RF requirements for CA\_2A-13A specified in [4]. These requirements are:



**Table 45.1.1-1: RF Requirements for CA\_2A-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)                  |

## 45.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA\_2A-13A specified in [5]. These requirements are:

**Table 45.1.2-1: RRM Requirements for CA\_2A-13A UE**

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

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# 46 CA configuration CA\_3A-19A Independent of Release

CA configuration CA\_3A-19A is specified in Release 12 but is defined as a release-independent CA configuration for Rel-10 upwards.

## 46.1 CA\_3A-19A UE

UEs that conform to Release 10 and support CA\_3A-19A shall support the following requirements in Release 12.

### 46.1.1 RF Requirements

The UE shall comply with the RF requirements for CA\_3A-19A specified in [4]. These requirements are:

**Table 46.1.1-1: RF Requirements for CA\_3A-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)                  |

### 46.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA\_3A-19A specified in [5]. These requirements are:

**Table 46.1.2-1: RRM Requirements for CA\_3A-19A UE**

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

## 47 CA configuration CA\_3A-26A Independent of Release

CA configuration CA\_3A-26A is specified in Release 12 but is defined as a release-independent CA configuration for Rel-10 upwards.

### 47.1 CA\_3A-26A UE

UEs that conform to Release 10 and support CA\_3A-26A shall support the following requirements in Release 12.

#### 47.1.1 RF Requirements

The UE shall comply with the RF requirements for CA\_3A-26A specified in [4]. These requirements are:

**Table 47.1.1-1: RF Requirements for CA\_3A-26A 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)                  |

#### 47.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA\_3A-26A specified in [5]. These requirements are:

**Table 47.1.2-1: RRM Requirements for CA\_3A-26A UE**

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

## 48 CA configuration CA\_3A-28A Independent of Release

CA configuration CA\_3A-28A is specified in Release 12 but is defined as a release-independent CA configuration for Rel-10 upwards.

### 48.1 CA\_3A-28A UE

UEs that conform to Release 10 and support CA\_3A-28A shall support the following requirements in Release 12.

#### 48.1.1 RF Requirements

The UE shall comply with the RF requirements for CA\_3A-28A specified in [4]. These requirements are:

**Table 48.1.1-1: RF Requirements for CA\_3A-28A 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)                  |

## 48.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA\_3A-28A specified in [5]. These requirements are:

**Table 48.1.2-1: RRM Requirements for CA\_3A-28A UE**

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

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# 49 CA configuration CA\_19A-21A Independent of Release

CA configuration CA\_19A-21A is specified in Release 12 but is defined as a release-independent CA configuration for Rel-10 upwards.

## 49.1 CA\_19A-21A UE

UEs that conform to Release 10 and support CA\_19A-21A shall support the following requirements in Release 12.

### 49.1.1 RF Requirements

The UE shall comply with the RF requirements for CA\_19A-21A specified in [4]. These requirements are:

**Table 49.1.1-1: RF Requirements for CA\_19A-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)                  |

### 49.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA\_19A-21A specified in [5]. These requirements are:

**Table 49.1.2-1: RRM Requirements for CA\_19A-21A UE**

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

## 50 CA configuration CA\_23A-29A Independent of Release

CA configuration CA\_23A-29A is specified in Release 12 but is defined as a release-independent CA configuration for Rel-10 upwards.

### 50.1 CA\_23A-29A UE

UEs that conform to Release 10 and support CA\_23A-29A shall support the following requirements in Release 12.

#### 50.1.1 RF Requirements

The UE shall comply with the RF requirements for CA\_23A-29A specified in [4]. These requirements are:

**Table 50.1.1-1: RF Requirements for CA\_23A-29A 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)                  |

#### 50.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for CA\_23A-29A specified in [5]. These requirements are:

**Table 50.1.2-1: RRM Requirements for CA\_23A-29A 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 |
| 2013-06 | RP-60 | RP-130771 | 106r1 | Introduction of CA 1+8 into TS36.307(Rel-10)   | 10.6.0 | 10.7.0 |
| 2013-06 | RP-60 | RP-130782 | 109r1 | Introduction of LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 28 to TS 36.307 Rel-10    | 10.6.0 | 10.7.0 |
| 2013-06 | RP-60 | RP-130785 | 112   | Introduction of LTE Advanced inter-band Carrier Aggregation of Band 23 and Band 29 to TS 36.307 (Rel-10) | 10.6.0 | 10.7.0 |
| 2013-06 | RP-60 | RP-130779 | 115   | Introduction of LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 26 to TS 36.307 (Rel-10)  | 10.6.0 | 10.7.0 |
| 2013-06 | RP-60 | RP-130777 | 118   | Introduction of CA_3A-19A to TS 36.307   | 10.6.0 | 10.7.0 |
| 2013-06 | RP-60 | RP-130783 | 121   | Introduction of CA_19A-21A to TS 36.307  | 10.6.0 | 10.7.0 |
| 2013-06 | RP-60 | RP-130775 | 129   | Introduction of CA_2A-13A to TS 36.307   | 10.6.0 | 10.7.0 |
| 2013-06 | RP-60 | RP-130791 | 134r1 | Introduction of Band 30  | 10.6.0 | 10.7.0 |
| 2013-06 | RP-60 | RP-130790 | 141   | Introduction of LTE 450 into TS 36.307 R10   | 10.6.0 | 10.7.0 |

|         |       |           |     |   |        |        |
|---------|-------|-----------|-----|---|--------|--------|
| 2013-06 | RP-60 | RP-130765 | 145 | Corrections to release independent specifications | 10.6.0 | 10.7.0 |
|---------|-------|-----------|-----|---|--------|--------|

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## History

| <b>Document history</b> |               |             |
|-------------------------|---------------|-------------|
| 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 |
| V10.7.0                 | July 2013     | Publication |