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Technical Specification

**Universal Mobile Telecommunications System (UMTS);  
Requirements on User Equipments (UEs)  
supporting a release-independent frequency band  
(3GPP TS 25.307 version 4.22.0 Release 4)**



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## Foreword

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# Foreword

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- 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 that is 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 25.101 (Release 5): "UE Radio Transmission and Reception (FDD)".
- [3] 3GPP TS 25.331 (Release 5): "Radio Resource Control Protocol".
- [4] 3GPP TS 25.331 (Release 4): "Radio Resource Control Protocol".
- [5] 3GPP TS 25.101 (Release 4): "UE Radio Transmission and Reception (FDD)".
- [6] 3GPP TS 25.133 (Release 4): "Requirements for Support of Radio Resource Management (FDD)".
- [7] 3GPP TS 25.133 (Release 5): "Requirements for Support of Radio Resource Management (FDD)".
- [8] 3GPP TS25.331 (Release 6): "Radio Resource Control Protocol".
- [9] 3GPP TS 25.101 (Release 6): "UE Radio Transmission and Reception (FDD)".
- [10] 3GPP TS 25.133 (Release 6): "Requirements for Support of Radio Resource Management (FDD)".
- [11] 3GPP TS 25.331 (Release 7): "Radio Resource Control Protocol".
- [12] 3GPP TS 25.101 (Release 7): "UE Radio Transmission and Reception (FDD)".
- [13] 3GPP TS 25.133 (Release 7): "Requirements for Support of Radio Resource Management (FDD)".
- [14] 3GPP TS 25.331 (Release 8): "Radio Resource Control Protocol".
- [15] 3GPP TS 25.101 (Release 8): "UE Radio Transmission and Reception (FDD)".
- [16] 3GPP TS 25.133 (Release 8): "Requirements for Support of Radio Resource Management (FDD)".
- [17] 3GPP TS 25.102 (Release 7): "UE Radio Transmission and Reception (TDD)".
- [18] 3GPP TS 25.102 (Release 8): "UE Radio Transmission and Reception (TDD)".
- [19] 3GPP TS 25.331 (Release 9): "Radio Resource Control Protocol".
- [20] 3GPP TS25.101 (Release 9): "UE Radio Transmission and Reception (FDD)".
- [21] 3GPP TS25.133 (Release 9): "Requirements for Support of Radio Resource Management (FDD)".
- [22] 3GPP TS 25.331 (Release 10): "Radio Resource Control Protocol".
- [23] 3GPP TS 25.101 (Release 10): "UE Radio Transmission and Reception (FDD)".



- [24] 3GPP TS 25.133 (Release 10): "Requirements for Support of Radio Resource Management (FDD)".
- [25] 3GPP TS 25.331 (Release 11): "Radio Resource Control Protocol".
- [26] 3GPP TS 25.101 (Release 11): "UE Radio Transmission and Reception (FDD)".
- [27] 3GPP TS 25.133 (Release 11): "Requirements for Support of Radio Resource Management (FDD)".
- [28] 3GPP TS 25.102 (Release 4): "UE Radio Transmission and Reception (TDD)".
- [29] to [31] Void.

---

## 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:

|     |                           |
|-----|---------------------------|
| FDD | Frequency Division Duplex |
| RRC | Radio Resource Control    |
| UE  | User Equipment            |

---

## 3A General

TSG-RAN has agreed that the standardisation of new frequency bands may be independent of a release. However, in order to implement a UE that conforms to a particular release but supports a band of operation that is specified in a later release, it is necessary to specify some extra requirements.

For example, Band III is contained in the Release 5 specifications. In order to implement a UE conforming to Release '4 but supporting Band III, it is necessary for the UE to additionally conform to some parts of the Release 5 specifications, such as the radio frequency requirements for the Band III and some signalling extensions relating to the UE radio access capabilities.

NOTE: See NOTE in clause 4.4 in [5] or [28].

---

## 4 Band III Independent of Release

Band III is specified in Release 5 but is defined as a release-independent frequency band. This approach aligns the Band III with other frequency bands when considering features that have to be supported in different releases.

### 4.1 Band III UE

UEs that conform to Release 4 and support Band III shall support the following requirements in Release 5.

#### 4.1.1 RF Requirements

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

| Section / Clause | Description |
|------------------|-------------|
|------------------|-------------|

|       |   |
|-------|---|
| 5     | Frequency bands and channel arrangement |
| 6.2.1 | UE maximum output power                 |
| 6.6   | Output RF spectrum emissions            |
| 7.3   | Reference sensitivity level             |
| 7.6   | Blocking characteristics                |
| 7.8   | Intermodulation characteristics         |
| 7.9   | Spurious emissions                      |

The UE shall comply with the following Radio Resource Management requirements for Band III specified in [7]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 4.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [3]:

- The parameter value "Band III" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band III.

---

# 5 Band II Independent of Release

Band II is specified in Release 5 but is defined as a release-independent frequency band. This approach aligns Band II with other frequency bands when considering features that have to be supported in different releases.

## 5.1 Band II UE

UEs that conform to Release 4 and support Band II shall support the following requirements in Release 5

### 5.1.1 RF Requirements

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

| Section / Clause | Description                             |
|------------------|---|
| 5                | Frequency bands and channel arrangement |
| 6.2.1            | UE maximum output power                 |
| 6.6              | Output RF spectrum emissions            |
| 7.3              | Reference sensitivity level             |
| 7.6              | Blocking characteristics                |
| 7.8              | Intermodulation characteristics         |
| 7.9              | Spurious emissions                      |

The UE shall comply with the following Radio Resource Management requirements for Band II specified in [7]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 5.1.2 Signalling Requirements

Release 4 contains the necessary signalling for Band II [4].

---

# 6 Band VI Independent of Release

Band VI is specified in Release 6 but is defined as a release-independent frequency band. This approach aligns Band VI with other frequency bands when considering features that have to be supported in different releases.

## 6.1 Band VI UE

UEs that conform to Release 4 and support Band VI shall support the following requirements in Release 6:

### 6.1.1 RF Requirements

The UE shall comply with the RF requirements for Band VI specified in [9]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for Band VI specified in [10]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

### 6.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [8]:

- The parameter value "Band VI" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band VI.
- The IE "Frequency band indicator" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use this IE to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE may:

- If the UE is on a network with Mobile Country Code set to '440', '441', '442' or '443' (i.e. the MCC is reserved for Japan):
  - assume that any DL UARFCN sent by the network from the overlapping region of Band V and Band VI is from Band VI.
- If the UE is on a network with a Mobile Country Code other than '440', '441', '442' or '443' (i.e. the MCC is not reserved for Japan):

- assume that any DL UARFCN sent by the network from the overlapping region of Band V and Band VI is from Band V.

---

## 7 Band IV Independent of Release

Band IV is specified in Release 6 but is defined as a release-independent frequency band. This approach aligns Band IV with other frequency bands when considering features that have to be supported in different releases.

### 7.1 Band IV UE

UEs that conform to Release 4 and support Band IV shall support the following requirements in Release 6

#### 7.1.1 RF Requirements

The UE shall comply with the RF requirements for Band IV specified in [9]. These requirements are:

| Section / Clause | Description                             |
|------------------|---|
| 5                | Frequency bands and channel arrangement |
| 6.2.1            | UE maximum output power                 |
| 6.6              | Output RF spectrum emissions            |
| 7.3              | Reference sensitivity level             |
| 7.6              | Blocking characteristics                |
| 7.8              | Intermodulation characteristics         |
| 7.9              | Spurious emissions                      |

The UE shall comply with the following Radio Resource Management requirements for Band IV specified in [10]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

#### 7.1.2 Signalling Requirements

The UE shall be able to decode "System Information Block type 5bis" specified in [8].

The UE shall support the following RRC extensions specified in [8]:

- The parameter value "Band IV" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band IV.
- The IE "Frequency band indicator" contained within the IEs "System Information Block type 5bis" and "System Information Block type 6". The UE shall use this IE to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator".

---

## 8 Band V Independent of Release

Band V is specified in Release 6 but is defined as a release-independent frequency band. This approach aligns Band V with other frequency bands when considering features that have to be supported in different releases.

## 8.1 Band V UE

UEs that conform to Release 4 and support band V shall support the following requirements in Release 6

### 8.1.1 RF Requirements

The UE shall comply with the RF requirements for band V specified in [9]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band V specified in [10]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

### 8.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [8]:

- The parameter value "Band V" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band V.
- The IE "Frequency band indicator" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use this IE to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator".

---

## 9 Band VII Independent of Release

Band VII is specified in Release 7 but is defined as a release-independent frequency band. This approach aligns the Band VII band with other frequency bands when considering features that have to be supported in different releases.

### 9.1 Band VII UE

UEs that conform to Release 4 and support band VII shall support the following requirements in Release 7

#### 9.1.1 RF Requirements

The UE shall comply with the RF requirements for band VII specified in [12]. These requirements are:

| Section / Clause | Description                             |
|------------------|---|
| 5                | Frequency bands and channel arrangement |

|       |  |
|-------|--|
| 6.2.1 | UE maximum output power                  |
| 6.6   | Output RF spectrum emissions             |
| 7.3   | Reference sensitivity level              |
| 7.6   | Blocking characteristics                 |
| 7.8   | Intermodulation characteristics          |
| 7.9   | Spurious emissions                       |
| B2.2  | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band VII specified in [13]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 9.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [11]:

- The parameter value "Band VII" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band VII.
- The UE shall use the parameter "3" as specified in [11] in order to signal its UE power class relating to band VII if the UE power class for this band corresponds to the class 3bis.
- The IE "Frequency band indicator" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use this IE to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator".

---

# 10 Band VIII Independent of Release

Band VIII is specified in Release 7 but is defined as a release-independent frequency band. This approach aligns the Band VIII band with other frequency bands when considering features that have to be supported in different releases.

## 10.1 Band VIII UE

UEs that conform to Release 4 and support band VIII shall support the following requirements in Release 7

### 10.1.1 RF Requirements

The UE shall comply with the RF requirements for band VIII specified in [12]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band VIII specified in [13]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 10.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [11]:

- The parameter value "Band VIII" for the IE "FDD frequency band 2" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band VIII.
- The UE shall use the parameter "3" as specified in [11] in order to signal its UE power class relating to band VIII if the UE power class for this band corresponds to the class 3bis.
- The IE "Frequency band indicator 2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use this IE to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator 2".

---

# 11 Band IX Independent of Release

Band IX is specified in Release 7 but is defined as a release-independent frequency band. This approach aligns the Band IX band with other frequency bands when considering features that have to be supported in different releases.

## 11.1 Band IX UE

UEs that conform to Release 4 and support Band IX shall support the following requirements in Release 7.

### 11.1.1 RF Requirements

The UE shall comply with the RF requirements for Band IX specified in [12]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for Band IX specified in [13]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 11.1.2 Signalling Requirements

The UE shall be able to decode "System Information Block type 5bis" specified in [11].

The UE shall support the following RRC extensions specified in [11]:

- The parameter value "Band IX" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band IX.
- The IEs "Frequency band indicator" and "Frequency band indicator2" contained within the IEs "System Information Block type 5bis" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

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# 12 Band X Independent of Release

Band X is specified in Release 7 but is defined as a release-independent frequency band. This approach aligns the Band X band with other frequency bands when considering features that have to be supported in different releases.

## 12.1 Band X UE

UEs that conform to Release 4 and support Band X shall support the following requirements in Release 7.

### 12.1.1 RF Requirements

The UE shall comply with the RF requirements for Band X specified in [12]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for Band X specified in [13]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

### 12.1.2 Signalling Requirements

The UE shall be able to decode "System Information Block type 5bis" specified in [11].

The UE shall support the following RRC extensions specified in [11]:

- The parameter value "Band X" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band X.



- The IEs "Frequency band indicator" and "Frequency band indicator2" contained within the IEs "System Information Block type 5bis" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

## 13 Band XI Independent of Release

Band XI is specified in Release 8 but is defined as a release-independent frequency band. This approach aligns the Band XI band with other frequency bands when considering features that have to be supported in different releases.

### 13.1 Band XI UE

UEs that conform to Release 4 and support band XI shall support the following requirements in Release 8

#### 13.1.1 RF Requirements

The UE shall comply with the RF requirements for band XI specified in [15]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band XI specified in [16]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

#### 13.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [14]:

- The parameter value "Band XI" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band XI.
- The IEs "Frequency band indicator" and "Frequency band indicator2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

## 14 Band XII Independent of Release

Band XII is specified in Release 8 but is defined as a release-independent frequency band. This approach aligns the Band XII band with other frequency bands when considering features that have to be supported in different releases.

### 14.1 Band XII UE

UEs that conform to Release 4 and support Band XII shall support the following requirements in Release 8.

#### 14.1.1 RF Requirements

The UE shall comply with the RF requirements for Band XII specified in [15]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for Band XII specified in [16]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

#### 14.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [14]:

- The parameter value "Band XII" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band XII.
- The IEs "Frequency band indicator" and "Frequency band indicator2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

## 15 Band XIII Independent of Release

Band XIII is specified in Release 8 but is defined as a release-independent frequency band. This approach aligns the Band XIII band with other frequency bands when considering features that have to be supported in different releases.

### 15.1 Band XIII UE

UEs that conform to Release 4 and support Band XIII shall support the following requirements in Release 8.

## 15.1.1 RF Requirements

The UE shall comply with the RF requirements for Band XIII specified in [15]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for Band XIII specified in [16]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 15.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [14]:

- The parameter value "Band XIII" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band XIII.
- The IEs "Frequency band indicator" and "Frequency band indicator2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

---

# 16 Band XIV Independent of Release

Band XIV is specified in Release 8 but is defined as a release-independent frequency band. This approach aligns the Band XIV band with other frequency bands when considering features that have to be supported in different releases.

## 16.1 Band XIV UE

UEs that conform to Release 4 and support Band XIV shall support the following requirements in Release 8.

### 16.1.1 RF Requirements

The UE shall comply with the RF requirements for Band XIV specified in [15]. These requirements are:

| Section / Clause | Description                             |
|------------------|---|
| 5                | Frequency bands and channel arrangement |
| 6.2.1            | UE maximum output power                 |
| 6.6              | Output RF spectrum emissions            |
| 7.3              | Reference sensitivity level             |
| 7.6              | Blocking characteristics                |

|      |  |
|------|--|
| 7.8  | Intermodulation characteristics          |
| 7.9  | Spurious emissions                       |
| B2.2 | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for Band XIV specified in [16]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 16.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [14]:

- The parameter value "Band XIV" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band XIV.
- The IEs "Frequency band indicator" and "Frequency band indicator2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

---

# 17 Band d Independent of Release

Band d is specified in Release 7 but is defined as a release-independent frequency band. This approach aligns the Band d band with other frequency bands when considering features that have to be supported in different releases.

## 17.1 Band d UE

UEs that conform to Release 4 and support Band d shall support the following requirements in Release 7.

### 17.1.1 RF Requirements

The UE shall comply with the RF requirements for Band d specified in [17]. These requirements are:

| Section / Clause | Description                             |
|------------------|---|
| 5                | Frequency bands and channel arrangement |
| 6.6.3            | Spurious emissions                      |
| 7.6              | Blocking characteristics                |
| 7.9              | Spurious emissions                      |

### 17.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [11]:

- The parameter values "d", "ad", "bd", "cd", "abd", "acd", "bcd" and "abcd" contained within the IEs "RF capability TDD". The UE shall use these parameter values in order to signal its radio access capabilities relating to Band d.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports.

## 18 Band e Independent of Release

Band e is specified in Release 8 but is defined as a release-independent frequency band. This approach aligns the Band e band with other frequency bands when considering features that have to be supported in different releases.

### 18.1 Band e UE

UEs that conform to Release 4 and support Band e shall support the following requirements in Release 8.

#### 18.1.1 RF Requirements

The UE shall comply with the RF requirements for Band e specified in [18]. These requirements are:

| Section / Clause | Description                             |
|------------------|---|
| 5                | Frequency bands and channel arrangement |
| 6.6.3            | Spurious emissions                      |
| 7.6              | Blocking characteristics                |
| 7.9              | Spurious emissions                      |

#### 18.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [14]:

- The parameter value "e" contained within the IEs "RF capability TDD". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band e.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports.

## 19 Band f Independent of Release

Band f is specified in Release 8 but is defined as a release-independent frequency band. This approach aligns the Band f band with other frequency bands when considering features that have to be supported in different releases.

### 19.1 Band f UE

UEs that conform to Release 4 and support Band f shall support the following requirements in Release 8.

#### 19.1.1 RF Requirements

The UE shall comply with the RF requirements for Band f specified in [18]. These requirements are:

| Section / Clause | Description                             |
|------------------|---|
| 5                | Frequency bands and channel arrangement |
| 6.6.3            | Spurious emissions                      |
| 7.6              | Blocking characteristics                |
| 7.9              | Spurious emissions                      |

#### 19.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [14]:

- The parameter value "f" contained within the IEs "RF capability TDD". The UE shall use this parameter value in order to signal its radio access capabilities relating to Band f.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports.

## 20 Band XIX Independent of Release

Band XIX is specified in Release 9 but is defined as a release-independent frequency band. This approach aligns the Band XIX band with other frequency bands when considering features that have to be supported in different releases.

### 20.1 Band XIX UE

UEs that conform to Release 4 and support band XIX shall support the following requirements in Release 9.

UEs that support band XIX shall also support band VI RF requirements and signalling requirements.

#### 20.1.1 RF Requirements

The UE shall comply with the RF requirements for band XIX specified in [20]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band XIX specified in [21]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

#### 20.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [19]:

- The parameter value "Band XIX" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band XIX.
- The IEs "Frequency band indicator" and "Frequency band indicator2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

## 21 Band XXI Independent of Release

Band XXI is specified in Release 9 but is defined as a release-independent frequency band. This approach aligns the Band XXI band with other frequency bands when considering features that have to be supported in different releases.

### 21.1 Band XXI UE

UEs that conform to Release 4 and support band XXI shall support the following requirements in Release 9.

#### 21.1.1 RF Requirements

The UE shall comply with the RF requirements for band XXI specified in [20]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band XXI specified in [21]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

#### 21.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [19]:

- The parameter value "Band XXI" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band XXI.
- The IEs "Frequency band indicator" and "Frequency band indicator2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

## 22 Band XX Independent of Release

Band XX is specified in Release 9 but is defined as a release-independent frequency band. This approach aligns the Band XX band with other frequency bands when considering features that have to be supported in different releases.

## 22.1 Band XX UE

UEs that conform to Release 4 and support band XX shall support the following requirements in Release 9.

### 22.1.1 RF Requirements

The UE shall comply with the RF requirements for band XX specified in [20]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band XX specified in [21]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

### 22.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [19]:

- The parameter value "Band XX" for the IE "FDD frequency band" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band XX.
- The IEs "Frequency band indicator" and "Frequency band indicator 2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

---

## 23 Band XXV Independent of Release

Band XXV is specified in Release 10 but is defined as a release-independent frequency band. This approach aligns the Band XXV band with other frequency bands when considering features that have to be supported in different releases.

### 23.1 Band XXV UE

UEs that conform to Release 4 and support band XXV shall support the following requirements in Release 10.

#### 23.1.1 RF Requirements

The UE shall comply with the RF requirements for band XXV specified in [23]. These requirements are:



| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band XXV specified in [24]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 23.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [22]:

- The parameter value "Band XXV" for the IE "FDD frequency band 3" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band XXV.
- The IEs "Frequency band indicator", "Frequency band indicator 2" and "Frequency band indicator 3" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator", "Frequency Band Indicator 2" and "Frequency Band Indicator 3".

---

## 24 Band XXII Independent of Release

Band XXII is specified in Release 10 but is defined as a release-independent frequency band. This approach aligns the Band XXII band with other frequency bands when considering features that have to be supported in different releases.

### 24.1 Band XXII UE

UEs that conform to Release 4 and support band XXII shall support the following requirements in Release 10.

#### 24.1.1 RF Requirements

The UE shall comply with the RF requirements for band XXII specified in [23]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band XXII specified in [24]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 24.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [22]:

- The parameter value "Band XXII" for the IE "FDD frequency band 2" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band XXII.
- The IEs "Frequency band indicator" and "Frequency band indicator 2" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator" and "Frequency Band Indicator 2".

---

## 25 Band XXVI Independent of Release

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

### 25.1 Band XXVI UE

UEs that conform to Release 4 and support band XXVI shall support the following requirements in Release 11.

#### 25.1.1 RF Requirements

The UE shall comply with the RF requirements for band XXVI specified in [26]. These requirements are:

| Section / Clause | Description                              |
|------------------|--|
| 5                | Frequency bands and channel arrangement  |
| 6.2.1            | UE maximum output power                  |
| 6.6              | Output RF spectrum emissions             |
| 7.3              | Reference sensitivity level              |
| 7.6              | Blocking characteristics                 |
| 7.8              | Intermodulation characteristics          |
| 7.9              | Spurious emissions                       |
| B2.2             | Multi-path fading propagation conditions |

The UE shall comply with the following Radio Resource Management requirements for band XXVI specified in [27]. These requirements are:

| Section / Clause | Description                      |
|------------------|----------------------------------|
| 9.1              | Measurement Performances for UE. |

## 25.1.2 Signalling Requirements

The UE shall support the following RRC extensions specified in [25]:

- The parameter value "Band XXVI" for the IE "FDD frequency band 3" contained within the IEs "UE radio access capability extension" and "Measurement capability extension". The UE shall use this parameter value in order to signal its radio access capabilities relating to band XXVI.
- The IEs "Frequency band indicator", "Frequency band indicator 2" and "Frequency band indicator 3" contained within the IEs "System Information Block type 5" and "System Information Block type 6". The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IE "Frequency band indicator", "Frequency Band Indicator 2" and "Frequency Band Indicator 3".

---

## Annex A (normative): Multi-Band Signalling Requirements

UEs that conform to Release 4 and support the Multiple Frequency Band Indicators feature [22], [25.306] shall support the following RRC extensions defined in Release 10:

- The IE "Support of Multiple Frequency Band Indicators" contained within the IE "UE radio access capability". The UE shall include this IE to indicate that it supports the signalling requirements of multiple radio frequency bands in a cell.
- The IE "Multiple Frequency Band indicator list" contained within System Information Block type 5, System Information Block type 5bis and System Information Block type 6. The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.
- The IE "Multiple Frequency Info List FDD" contained within System Information Block type 11, System Information Block type 11bis and System Information Block type 12. The UE shall use these IEs to determine whether it is compliant with the RF requirement in the indicated frequency band, in case the UE is in the frequency that belongs to multiple frequency bands.

The UE shall be able to at least decode any unrelated RRC extensions that can be included in between the release it supports, and the IEs "Multiple Frequency Band indicator list" and "Multiple Frequency Info List FDD".

## Annex B (normative): Frequency arrangement for overlapping operating bands

The following information is provided in order to assist a UE to derive the DL UARFCN and UL UARFCN in a multi-band environment, in which multiple overlapping operating bands may be indicated in the IE "Multiple Frequency Band indicator list" (System Information Block type 5, System Information Block type 5bis and System Information Block type 6), or the IE "Multiple Frequency Info List FDD" (System Information Block type 11, System Information Block type 11bis and System Information Block type 12).

The sets of bands (multi-band environment), independent of release, that may be indicated in a cell are shown in Table B-1. Subsets of these may also be indicated. The DL UARFCN and UL UARFCN are derived according to [25.101].

**Table B-1: Overlapping bands (multi-band environments) for each UTRA band**

| UTRA Operating Band | Overlapping 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         |
| 18                  | 5, 26                            | FDD         |
| 19                  | 5, 26                            | FDD         |
| 25                  | 2                                | FDD         |
| 26                  | 5, 18, 19                        | FDD         |

## Annex C (informative): Change history

| Change history |       |           |      |     |   |        |        |
|----------------|-------|-----------|------|-----|---|--------|--------|
| Date           | TSG # | TSG Doc.  | CR   | Rev | Subject/Comment   | Old    | New    |
| 09/2001        | RP-13 | RP-010557 |      |     | Approved at TSG-RAN #13 and placed under Change Control   | -      | 3.0.0  |
|                | RP-13 | RP-010558 | 001  | 1   | Correction to create Release 4  | 3.0.0  | 4.0.0  |
| 12/2001        | RP-14 | RP-010759 | 003  |     | Inclusion of release independent RF related information   | 4.0.0  | 4.1.0  |
| 12/2003        | RP-22 | RP-030630 | 008  | 1   | Introduction of UMTS800   | 4.1.0  | 4.2.0  |
| 03/2004        | RP-23 | RP-040093 | 012  |     | Additional performance requirement for UMTS800  | 4.2.0  | 4.3.0  |
| 03/2004        | RP-23 | RP-040092 | 018  |     | Frequency band alignment with 25.101  | 4.2.0  | 4.3.0  |
| 03/2004        | RP-23 | RP-040090 | 021  |     | Introduction of UMTS1700/2100 (Band IV)   | 4.2.0  | 4.3.0  |
| 03/2004        | RP-23 | RP-040091 | 025  |     | Introduction of UMTS850(Band V)   | 4.2.0  | 4.3.0  |
| 09/2004        | RP-25 | RP-040326 | 029  |     | Correction to applicable TS25.101 clauses/section for release independent operation   | 4.3.0  | 4.4.0  |
| 09/2005        | RP-29 | RP-050466 | 0036 |     | Introduction of UMTS2600 internal band, Band VII  | 4.4.0  | 4.5.0  |
| 12/2005        | RP-30 | RP-050800 | 0040 |     | Introduction of UMTS 900 (Band VIII)  | 4.5.0  | 4.6.0  |
| 12/2005        | RP-30 | RP-050801 | 0032 |     | Introduction of UMTS1700  | 4.5.0  | 4.6.0  |
| 09/2006        | RP-33 | RP-060581 | 0045 | 1   | Power class for UMTS2600 (VII) internal / 900 (VIII)  | 4.6.0  | 4.7.0  |
| 12/2006        | RP-34 | RP-060714 | 0049 |     | Signalling requirements for Band VI and Band IX   | 4.7.0  | 4.8.0  |
| 12/2006        | RP-34 | RP-060715 | 0054 |     | Introduction of Band X (Extended UMTS 1.7/2.1 GHz) in 25.307  | 4.7.0  | 4.8.0  |
| 03/2007        | RP-35 | RP-070148 | 0059 |     | Signalling requirements for Band VI   | 4.8.0  | 4.9.0  |
| 09/2007        | RP-37 | RP-070633 | 0062 |     | Introduction of Band XI   | 4.9.0  | 4.10.0 |
| 03/2008        | RP-39 | RP-080200 | 0068 | -   | Introduction of UMTS 700 MHz (Bands XII – XIV) in 25.307  | 4.10.0 | 4.11.0 |
| 09/2008        | RP-41 | RP-080676 | 0073 | 1   | Introduction of UMTS Band d in 25.307   | 4.11.0 | 4.12.0 |
| 09/2008        | RP-41 | RP-080695 | 0078 | -   | Introduction of UMTS Band e in 25.307   | 4.11.0 | 4.12.0 |
| 03/2009        | RP-43 | RP-090146 | 0083 | -   | Introduction of UMTS Band f in 25.307   | 4.12.0 | 4.13.0 |
| 09/2009        | RP-45 | RP-090921 | 0093 | -   | Introduction of Band XIX  | 4.13.0 | 4.14.0 |
| 12/2009        | RP-46 | RP-091335 | 0095 | 1   | Introduction of band XXI - 25.307   | 4.14.0 | 4.15.0 |
| 03/2010        | RP-47 | RP-100302 | 0101 | -   | Introduction of band XX (800 MHz)   | 4.15.0 | 4.16.0 |
| 06/2011        | RP-52 | RP-110844 | 0135 | 1   | Add Expanded 1900 MHz Band for UTRA and LTE to TS25.307   | 4.16.0 | 4.17.0 |
| 09/2011        | RP-53 | RP-111289 | 0142 | -   | Removal of System Information Block Type 5bis for release independent band XXV  | 4.17.0 | 4.18.0 |
|                | RP-53 | RP-111294 | 0155 | -   | Add Band XXII for LTE/UMTS 3500 (FDD)   | 4.17.0 | 4.18.0 |
| 03/2012        | RP-55 | RP-120328 | 0162 | -   | Add Extending 850 MHz Upper Band (814 - 849 MHz) to TS25.307  | 4.18.0 | 4.19.0 |
| 12/2012        | RP-58 | RP-121922 | 0186 | -   | Multiple frequency band indicators per cell   | 4.19.0 | 4.20.0 |
| 12/2013        | RP-62 | RP-131981 | 0195 | -   | Early implementation of MFBI feature  | 4.20.0 | 4.21.0 |
| 03/2014        | RP-63 | RP-140336 | 0200 | -   | Introducing 'General' clause with note referring to notes in clause 4.4 in TS25.101 and TS25.102, editorial modifications to Scope clause | 4.21.0 | 4.22.0 |

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## History

| <b>Document history</b> |                |             |
|-------------------------|----------------|-------------|
| V4.0.0                  | September 2001 | Publication |
| V4.1.0                  | December 2001  | Publication |
| V4.2.0                  | December 2003  | Publication |
| V4.3.0                  | May 2004       | Publication |
| V4.4.0                  | September 2004 | Publication |
| V4.5.0                  | September 2005 | Publication |
| V4.6.0                  | December 2005  | Publication |
| V4.7.0                  | September 2006 | Publication |
| V4.8.0                  | December 2006  | Publication |
| V4.9.0                  | March 2007     | Publication |
| V4.10.0                 | October 2007   | Publication |
| V4.11.0                 | April 2008     | Publication |
| V4.12.0                 | October 2008   | Publication |
| V4.13.0                 | April 2009     | Publication |
| V4.14.0                 | September 2009 | Publication |
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| V4.16.0                 | April 2010     | Publication |
| V4.17.0                 | July 2011      | Publication |
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| V4.19.0                 | March 2012     | Publication |
| V4.20.0                 | January 2013   | Publication |
| V4.21.0                 | January 2014   | Publication |
| V4.22.0                 | March 2014     | Publication |