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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 3.7.0 Release 1999)**



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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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Contents

| | |
|--|-----------|
| Intellectual Property Rights | 2 |
| Foreword..... | 2 |
| Foreword..... | 4 |
| 1 Scope | 5 |
| 2 References | 5 |
| 3 Definitions and abbreviations..... | 6 |
| 3.1 Definitions | 6 |
| 3.2 Abbreviations | 6 |
| 4 Band III Independent of Release | 6 |
| 4.1 Band III UE | 6 |
| 4.1.1 RF Requirements | 6 |
| 4.1.2 Signalling Requirements | 6 |
| 5 Band II Independent of Release | 7 |
| 5.1 Band II UE | 7 |
| 5.1.1 RF Requirements | 7 |
| 5.1.2 Signalling Requirements | 7 |
| 6 Band VI Independent of Release..... | 7 |
| 6.1 Band VI UE..... | 7 |
| 6.1.1 RF Requirements | 7 |
| 6.1.2 Signalling Requirements..... | 8 |
| 7 Band IV Independent of Release..... | 8 |
| 7.1 Band IV UE..... | 8 |
| 7.1.1 RF Requirements | 8 |
| 7.1.2 Signalling Requirements..... | 9 |
| 8 Band V Independent of Release | 9 |
| 8.1 Band V UE | 9 |
| 8.1.1 RF Requirements | 9 |
| 8.1.2 Signalling Requirements | 9 |
| 9 Band VII Independent of Release | 10 |
| 9.1 Band VII UE..... | 10 |
| 9.1.1 RF Requirements | 10 |
| 9.1.2 Signalling Requirements | 10 |
| 10 Band VIII Independent of Release | 11 |
| 10.1 Band VIII UE | 11 |
| 10.1.1 RF Requirements | 11 |
| 10.1.2 Signalling Requirements | 11 |
| 11 Band IX Independent of Release..... | 11 |
| 11.1 Band IX UE..... | 12 |
| 11.1.1 RF Requirements | 12 |
| 11.1.2 Signalling Requirements..... | 12 |
| Annex A (informative): Change history | 13 |
| History | 14 |

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1 Scope

The present document specifies requirements on UEs supporting a frequency band that is independent of release. 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 '99 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.

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, version 5): "UE Radio Transmission and Reception (FDD)".
- [3] 3GPP TS 25.331 (Release 5, version 5): "Radio Resource Control Protocol".
- [4] 3GPP TS 25.331 (Release '99, version 3): "Radio Resource Control Protocol".
- [5] 3GPP TS 25.101 (Release '99, version 3): "UE Radio Transmission and Reception (FDD)".
- [6] 3GPP TS 25.133 (Release '99, version 3): "Requirements for Support of Radio Resource Management (FDD)".
- [7] 3GPP TS 25.133 (Release 5, version 5): "Requirements for Support of Radio Resource Management (FDD)".
- [8] 3GPP TS 25.331 (Release 6, version 6): "Radio Resource Control Protocol".
- [9] 3GPP TS 25.101 (Release 6, version 6): "UE Radio Transmission and Reception (FDD)".
- [10] 3GPP TS 25.133 (Release 6, version 6): "Requirements for Support of Radio Resource Management (FDD)".
- [11] 3GPP TS 25.331 (Release 7, version 7): "Radio Resource Control Protocol".
- [12] 3GPP TS 25.101 (Release 7, version 7): "UE Radio Transmission and Reception (FDD)".
- [13] 3GPP TS 25.133 (Release 7, version 7): "Requirements for Support of Radio Resource Management (FDD)".

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 |

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 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 '99 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 for 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 '99 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 '99 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 '99 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 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".

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 '99 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 the Band V band 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 '99 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 '99 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 '99 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 '99 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 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".

Annex A (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 |
| 12/2001 | RP-14 | RP-010759 | 002 | | Inclusion of release independent RF related information | 3.0.0 | 3.1.0 |
| 12/2003 | RP-22 | RP-030630 | 007 | 1 | Introduction of UMTS800 | 3.1.0 | 3.2.0 |
| 03/2004 | RP-23 | RP-040093 | 011 | | Additional performance requirement for UMTS800 | 3.2.0 | 3.3.0 |
| 03/2004 | RP-23 | RP-040092 | 017 | | Frequency band alignment with 25.101 | 3.2.0 | 3.3.0 |
| 03/2004 | RP-23 | RP-040090 | 020 | | Introduction of UMTS1700/2100 (Band IV) | 3.2.0 | 3.3.0 |
| 03/2004 | RP-23 | RP-040091 | 024 | | Introduction of UMTS850(Band V) | 3.2.0 | 3.3.0 |
| 09/2004 | RP-25 | RP-040326 | 028 | | Correction to applicable TS25.101 clauses/section for release independent operation | 3.3.0 | 3.4.0 |
| 09/2005 | RP-29 | RP-050466 | 0035 | | Introduction of UMTS2600 internal band, Band VII | 3.4.0 | 3.5.0 |
| 12/2005 | RP-30 | RP-050800 | 0039 | | Introduction of UMTS 900 (Band VIII) | 3.5.0 | 3.6.0 |
| 12/2005 | RP-30 | RP-050801 | 0031 | | Introduction of UMTS1700 | 3.5.0 | 3.6.0 |
| 09/2006 | RP-33 | RP-060581 | 0044 | 1 | Power class for UMTS2600 (VII) internal / 900 (VIII) | 3.6.0 | 3.7.0 |

History

| Document history | | |
|-------------------------|----------------|-------------|
| V3.0.0 | September 2001 | Publication |
| V3.1.0 | December 2001 | Publication |
| V3.2.0 | December 2003 | Publication |
| V3.3.0 | May 2004 | Publication |
| V3.4.0 | September 2004 | Publication |
| V3.5.0 | September 2005 | Publication |
| V3.6.0 | December 2005 | Publication |
| V3.7.0 | September 2006 | Publication |