

# ETSI TS 125 307 V4.4.0 (2004-09)

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*Technical Specification*

## **Universal Mobile Telecommunications System (UMTS); Requirements on UEs supporting a release-independent frequency band (3GPP TS 25.307 version 4.4.0 Release 4)**

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Reference

RTS/TSGR-0225307v440

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Keywords

UMTS

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# Foreword

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

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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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 '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.

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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, 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 4, version 4): "Radio Resource Control Protocol".
- [5] 3GPP TS 25.101 (Release 4, version 4): "UE Radio Transmission and Reception (FDD)".
- [6] 3GPP TS 25.133 (Release 4, version 4): "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 TS25.331 (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)".

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# 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

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## 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.

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## 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].

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## 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.

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# 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".

## 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
	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

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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	March 2004	Publication
V4.4.0	September 2004	Publication