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Technical Specification

**LTE;
Evolved Universal Terrestrial Radio Access (E-UTRA);
Requirements on User Equipments (UEs)
supporting a release-independent frequency band
(3GPP TS 36.307 version 8.4.0 Release 8)**



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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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Foreword

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

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

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
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- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 36.101 (Release 9, version 9): "Evolved Universal Terrestrial Radio Access (E-UTRA); "User Equipment (UE) Radio Transmission and Reception".
- [3] 3GPP TS 36.133 (Release 9, version 9): "Evolved Universal Terrestrial Radio Access (E-UTRA); "Requirements for Support of Radio Resource Management".

3 Definitions and Abbreviations

3.1 Definitions

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

3.2 Abbreviations

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

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

4 Band 18 Independent of Release

Band 18 is specified in Release 9 but is defined as a release-independent frequency band. This approach aligns the Band 18 band with other frequency bands when considering features that have to be supported in different releases.

4.1 Band 18 UE

UEs that conform to Release 8 and support band 18 shall support the following requirements in Release 9.

4.1.1 RF Requirements

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

Table 4.1.1-1: RF Requirements for Band 18 UE

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

4.1.2 RRM Requirements

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

Table 4.1.2-1: RRM Requirements for Band 18 UE

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

5 Band 19 Independent of Release

Band 19 is specified in Release 9 but is defined as a release-independent frequency band. This approach aligns the Band 19 band with other frequency bands when considering features that have to be supported in different releases.

5.1 Band 19 UE

UEs that conform to Release 8 and support band 19 shall support the following requirements in Release 9.

5.1.1 RF Requirements

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

Table 5.1.1-1: RF Requirements for Band 19 UE

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

5.1.2 RRM Requirements

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

Table 5.1.2-1: RRM Requirements for Band 19 UE

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

6 Band 20 Independent of Release

Band 20 is specified in Release 9 but is defined as a release-independent frequency band. This approach aligns the Band 20 band with other frequency bands when considering features that have to be supported in different releases.

6.1 Band 20 UE

UEs that conform to Release 8 and support band 20 shall support the following requirements in Release 9.

6.1.1 RF Requirements

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

Table 6.1.1-1: RF Requirements for Band 20 UE

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

6.1.2 RRM Requirements

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

Table 6.1.2-1: RRM Requirements for Band 20 UE

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

7 Band 21 Independent of Release

Band 21 is specified in Release 9 but is defined as a release-independent frequency band. This approach aligns the Band 21 band with other frequency bands when considering features that have to be supported in different releases.

7.1 Band 21 UE

UEs that conform to Release 8 and support band 21 shall support the following requirements in Release 9.

7.1.1 RF Requirements

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

Table 7.1.1-1: RF Requirements for Band 21 UE

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

7.1.2 RRM Requirements

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

Table 7.1.2-1: RRM Requirements for Band 21 UE

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

8 Band 41 Independent of Release

Band 41 is specified in Release 10 but is defined as a release-independent frequency band. This approach aligns the Band 41 band with other frequency bands when considering features that have to be supported in different releases.

8.1 Band 41 UE

UEs that conform to Release 8 and support band 41 shall support the following requirements in Release 10.

8.1.1 RF Requirements

The UE shall comply with the RF requirements for band 41 specified in [2]. These requirements are:

Table 8.1.1-1: RF Requirements for Band 41 UE

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

8.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for band 41 specified in [3]. These requirements are:

Table 8.1.2-1: RRM Requirements for Band 41 UE

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

9 Band 42 Independent of Release

Band 42 is specified in Release 10 but is defined as a release-independent frequency band. This approach aligns the Band 42 band with other frequency bands when considering features that have to be supported in different releases.

9.1 Band 42 UE

UEs that conform to Release 8 and support band 42 shall support the following requirements in Release 10.

9.1.1 RF Requirements

The UE shall comply with the RF requirements for band 42 specified in [2]. These requirements are:

Table 9.1.1-1: RF Requirements for Band 42 UE

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

9.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for band 42 specified in [3]. These requirements are:

Table 9.1.2-1: RRM Requirements for Band 42 UE

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

10 Band 43 Independent of Release

Band 43 is specified in Release 10 but is defined as a release-independent frequency band. This approach aligns the Band 43 band with other frequency bands when considering features that have to be supported in different releases.

10.1 Band 43 UE

UEs that conform to Release 8 and support band 43 shall support the following requirements in Release 10.

10.1.1 RF Requirements

The UE shall comply with the RF requirements for band 43 specified in [2]. These requirements are:

Table 10.1.1-1: RF Requirements for Band 43 UE

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

10.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for band 43 specified in [3]. These requirements are:

Table 10.1.2-1: RRM Requirements for Band 43 UE

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

11 Band 24 Independent of Release

Band 24 is specified in Release 10, but is defined as a release-independent frequency band. This approach aligns the Band 24 band with other frequency bands when considering features that have to be supported in different releases.

11.1 Band 24 UE

UEs that conform to Release 8 and support Band 24 shall support the following requirements in Release 10.

11.1.1 RF Requirements

The UE shall comply with the Release 10 RF requirements for Band 24 specified [2]. The requirements are:

Table 11.1.1-1: RF Requirements for Band 24 UE

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

11.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 24 specified in [3]. These requirements are:

Table 11.1.2-1: RRM Requirements for Band 24 UE

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

12 Band 23 Independent of Release

Band 23 is specified in Release 10 but is defined as a release-independent frequency band. This approach aligns the Band 23 band with other frequency bands when considering features that have to be supported in different releases.

12.1 Band 23 UE

UEs that conform to Release 8 and support band 23 shall support the following requirements in Release 10.

12.1.1 RF Requirements

The UE shall comply with the RF requirements for band 23 specified in [2]. These requirements are:

Table 12.1.1-1: RF Requirements for Band 23 UE

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

12.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for band 23 specified in [3]. These requirements are:

Table 12.1.2-1: RRM Requirements for Band 23 UE

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

13 Band 25 Independent of Release

Band 25 is specified in Release 10 but is defined as a release-independent frequency band. This approach aligns the Band 25 band with other frequency bands when considering features that have to be supported in different releases.

13.1 Band 25 UE

UEs that conform to Release 8 and support band 25 shall support the following requirements in Release 10.

13.1.1 RF Requirements

The UE shall comply with the RF requirements for band 25 specified in [2]. These requirements are:

Table 13.1.1-1: RF Requirements for Band 25 UE

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

13.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for band 25 specified in [3]. These requirements are:

Table 13.1.2-1: RRM Requirements for Band 25 UE

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

14 Band 22 Independent of Release

Band 22 is specified in Release 10 but is defined as a release-independent frequency band. This approach aligns the Band 22 band with other frequency bands when considering features that have to be supported in different releases.

14.1 Band 22 UE

UEs that conform to Release 8 and support band 22 shall support the following requirements in Release 10.

14.1.1 RF Requirements

The UE shall comply with the RF requirements for band 22 specified in [2]. These requirements are:

Table 14.1.1-1: RF Requirements for Band 22 UE

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

14.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for band 22 specified in [3]. These requirements are:

Table 14.1.2-1: RRM Requirements for Band 22 UE

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

Annex A (informative): Change history

Table A.1: Change History

Date	TSG#	TSG Doc.	CR	Subject	Old	New
11-2009	RP#46	RP-091141		TS36.307 V0.1.0 approved by RAN (Originally in R4-095022)	-	0.1.0
02-2010	R4#54	R4-100419		For release 9 version, replace sections 4 to 6 as "Void" and add a new void section as section 7.	0.1.0	0.2.0
03-2010	RP#47	RP-100162		TS36.307 v1.0.0 for approval	0.2.0	1.0.0
03-2010	RP#47	RP-100162		Approved by RAN	1.0.0	9.0.0
03-2010	RP#47	RP-100163	1	Introduction of Band 18, 19, 20 and 21 in 36.307	9.0.0	8.0.0
09-2010	RP-49	RP-100927	3	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.307 V800	8.0.0	8.1.0
12-2010	RP-50	RP-101356	007	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.307	8.1.0	8.2.0
12-2010	RP-50	RP-101361	004	Introduction of L-band in TS 36.307	8.1.0	8.2.0
06-2011	RP-52	RP-110804	013r2	Add Expanded 1900 MHz Band (Band 25) in 36.307	8.2.0	8.3.0
06-2011	RP-52	RP-110812	020r1	Add 2GHz S-Band (Band 23) in 36.307 (Rel 8)	8.2.0	8.3.0
09-2011	RP-53	RP-111255	023	Add Band 22 for LTE/UMTS 3500 (FDD) to TS 36.307	8.3.0	8.4.0

History

Document history		
V8.0.0	April 2010	Publication
V8.1.0	October 2010	Publication
V8.2.0	January 2011	Publication
V8.3.0	June 2011	Publication
V8.4.0	November 2011	Publication