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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 9.6.0 Release 9)**



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Contents

Intellectual Property Rights	2
Foreword.....	2
Foreword.....	5
1 Scope	6
2 References	6
3 Definitions and Abbreviations.....	6
3.1 Definitions	6
3.2 Abbreviations	6
4 Void.....	8
5 Void.....	8
6 Void.....	8
7 Void.....	8
8 Band 41 Independent of Release	8
8.1 Band 41 UE	8
8.1.1 RF Requirements	8
8.1.2 RRM Requirements	9
9 Band 42 Independent of Release	9
9.1 Band 42 UE	9
9.1.1 RF Requirements	9
9.1.2 RRM Requirements	9
10 Band 43 Independent of Release	10
10.1 Band 43 UE	10
10.1.1 RF Requirements	10
10.1.2 RRM Requirements	10
11 Band 24 Independent of Release	11
11.1 Band 24 UE	11
11.1.1 RF Requirements	11
11.1.2 RRM Requirements	11
12 Band 23 Independent of Release	11
12.1 Band 23 UE	11
12.1.1 RF Requirements	12
12.1.2 RRM Requirements	12
13 Band 25 Independent of Release	12
13.1 Band 25 UE	12
13.1.1 RF Requirements	12
13.1.2 RRM Requirements	13
14 Band 22 Independent of Release	13
14.1 Band 22 UE	13
14.1.1 RF Requirements	13
14.1.2 RRM Requirements	14
15 Band 26 Independent of Release	14
15.1 Band 26 UE	14
15.1.1 RF Requirements	14
15.1.2 RRM Requirements	15
16 Band 27 Independent of Release	15
16.1 Band 27 UE	15

16.1.1	RF Requirements	15
16.1.2	RRM Requirements	16
17	Band 28 Independent of Release	16
17.1	Band 28 UE	16
17.1.1	RF Requirements	16
17.1.2	RRM Requirements	17
18	Band 44 Independent of Release	17
18.1	Band 44 UE	17
18.1.1	RF Requirements	17
18.1.2	RRM Requirements	18
History	20

Foreword

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

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- x the first digit:
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 - 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.

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.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 36.101 (Release 10): "Evolved Universal Terrestrial Radio Access (E-UTRA); "User Equipment (UE) Radio Transmission and Reception".
- [3] 3GPP TS 36.133 (Release 10): "Evolved Universal Terrestrial Radio Access (E-UTRA); "Requirements for Support of Radio Resource Management".
- [4] 3GPP TS 36.101 (Release 11): "Evolved Universal Terrestrial Radio Access (E-UTRA); "User Equipment (UE) Radio Transmission and Reception".
- [5] 3GPP TS 36.133 (Release 11): "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
TDD	Time Division Duplex
RRC	Radio Resource Control
RRM	Radio Resource Management

UE

User Equipment

4 Void

5 Void

6 Void

7 Void

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 9 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 9 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 9 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 9 and support Band 24 shall support the following requirements in Release 10.

11.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 24 specified in [2]. These 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 9 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 9 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 9 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.

15 Band 26 Independent of Release

Band 26 is specified in Release 11 but is defined as a release-independent frequency band. This approach aligns the Band 26 band with other frequency bands when considering features that have to be supported in different releases.

15.1 Band 26 UE

UEs that conform to Release 9 and support Band 26 shall support the following requirements in Release 11.

15.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 26 specified [4]. The requirements are:

Table 15.1.1-1: RF Requirements for Band 26 UE

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

15.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 26 specified in [5]. These requirements are:

Table 15.1.2-1: RRM Requirements for Band 26 UE

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

16 Band 27 Independent of Release

Band 27 is specified in Release 11, but is defined as a release-independent frequency band. This approach aligns the Band 27 band with other frequency bands when considering features that have to be supported in different releases.

16.1 Band 27 UE

UEs that conform to Release 9 and support Band 27 shall support the following requirements in Release 11.

16.1.1 RF Requirements

The UE shall comply with the Release 11 RF requirements for Band 27 specified [4]. The requirements are:

Table 16.1.1-1: RF Requirements for Band 27 UE

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

16.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 27 specified in [5]. These requirements are:

Table 16.1.2-1: RRM Requirements for Band 27 UE

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

17 Band 28 Independent of Release

Band 28 is specified in Release 11 but is defined as a release-independent frequency band. This approach aligns the Band 28 band with other frequency bands when considering features that have to be supported in different releases.

17.1 Band 28 UE

UEs that conform to Release 8 and support Band 28 shall support the following requirements in Release 11.

17.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 28 specified [4]. The requirements are:

Table 17.1.1-1: RF Requirements for Band 28 UE

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

17.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 28 specified in [5]. These requirements are:

Table 17.1.2-1: RRM Requirements for Band 28 UE

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

18 Band 44 Independent of Release

Band 44 is specified in Release 11 but is defined as a release-independent frequency band. This approach aligns the Band 44 band with other frequency bands when considering features that have to be supported in different releases.

18.1 Band 44 UE

UEs that conform to Release 8 and support Band 44 shall support the following requirements in Release 11.

18.1.1 RF Requirements

The UE shall comply with the RF requirements for Band 44 specified [4]. The requirements are:

Table 18.1.1-1: RF Requirements for Band 44 UE

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

18.1.2 RRM Requirements

The UE shall comply with the following RRM requirements for Band 44 specified in [5]. These requirements are:

Table 18.1.2-1: RRM Requirements for Band 44 UE

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

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
09-2010	RP-49	RP-100927	2	CR LTE_TDD_2600_US spectrum band definition additions to TS 36.307 V900	9.0.0	9.1.0
				Correction of section numbering	9.1.0	9.1.1
12-2010	RP-50	RP-101356	008	Band 42 and 43 parameters for UMTS/LTE 3500 (TDD) for TS 36.307	9.1.1	9.2.0
12-2010	RP-50	RP-101361	005	Introduction of L-band in TS 36.307	9.1.1	9.2.0
06-2011	RP-52	RP-110804	014r3	Add Expanded 1900 MHz Band (Band 25) in 36.307	9.2.0	9.3.0
06-2011	RP-52	RP-110812	021r1	Add 2GHz S-Band (Band 23) in 36.307 (Rel 9)	9.2.0	9.3.0
09-2011	RP-53	RP-111255	024	Add Band 22 for LTE/UMTS 3500 (FDD) to TS 36.307	9.3.0	9.4.0
03-2012	RP-55	RP-120305	027	Introduction of Band 26/XXVI to TS 36.307	9.4.0	9.5.0
2012-06	RP-56	RP-120769	035r1	Correction of references	9.5.0	9.6.0
2012-06	RP-56	RP-120793	047	Introduction of APAC700(FDD) into TS 36.307 Rel-9	9.5.0	9.6.0
2012-06	RP-56	RP-120793	051	Introduction of APAC700(TDD) into TS 36.307 Rel-9	9.5.0	9.6.0
2012-06	RP-56	RP-120791	055	Introduction of e850_LB (Band 27) to TS 36.307	9.5.0	9.6.0

History

Document history		
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V9.4.0	November 2011	Publication
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