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Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE)

(ETSI EN 301 908-13 V13.3.1 (2024-10))

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Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Mobile Standards Group (MSG).

For non-EU countries the present document may be used for regulatory (Type Approval) purposes.

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.9] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.2].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A-1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

The present document is part 13 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.12].

This version of the harmonized standard includes the following revisions:

- Revision of the maximum output power requirements outlined in clause 4.2.2.
- Inclusion of requirements for band 41.
- Inclusion of Additional spurious emissions limits for frequency range 470 to 694 MHz to protect Broadband Public Protection and Disaster Relief (BB-PPDR) and Digital Terrestrial Television (DTT) operations.
- Inclusion of specific requirements for bands 72, 87, and 88 to protect Broadband Public Protection and Disaster Relief (BB-PPDR) and Digital Terrestrial Television (DTT) operations.

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National transposition dates	
Date of adoption of this EN:	1 October 2024
Date of latest announcement of this EN (doa):	31 January 2025
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 July 2025
Date of withdrawal of any conflicting National Standard (dow):	31 July 2026

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The present document is part of a set of standards developed by ETSI and is designed to fit in a modular structure to cover all radio and telecommunications terminal equipment within the scope of the Radio Equipment Directive [i.2]. The present document is produced following the guidance in ETSI EG 203 336 [i.3] as applicable.

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1 Scope

The present document applies to the following radio equipment type:

- User Equipment for Evolved Universal Terrestrial Radio Access (E-UTRA).

This radio equipment type is capable of operating in all or any part of the frequency bands given in tables from 1-1 through 1-5.

Table 1-1: E-UTRA UE operating bands

E-UTRA Band	Direction of UE transmission	E-UTRA operating bands	Related EC/ECC decision
1	Transmit	1 920 MHz to 1 980 MHz	[i.21] and [i.22]
	Receive	2 110 MHz to 2 170 MHz	
3	Transmit	1 710 MHz to 1 785 MHz	[i.19] and [i.20]
	Receive	1 805 MHz to 1 880 MHz	
7	Transmit	2 500 MHz to 2 570 MHz	[i.24] and [i.25]
	Receive	2 620 MHz to 2 690 MHz	
8	Transmit	880 MHz to 915 MHz	[i.19] and [i.20]
	Receive	925 MHz to 960 MHz	
20	Transmit	832 MHz to 862 MHz	[i.6] and [i.7]
	Receive	791 MHz to 821 MHz	
22	Transmit	3 410 MHz to 3 490 MHz	[i.26] and [i.27]
	Receive	3 510 MHz to 3 590 MHz	
28 (see note 6)	Transmit	703 MHz to 748 MHz	[i.14] and [i.15]
	Receive	758 MHz to 803 MHz	
31	Transmit	452,5 MHz to 457,5 MHz	[i.16]
	Receive	462,5 MHz to 467,5 MHz	
32 (see note 1) (see note 2)	Transmit	N/A	
	Receive	1 452 MHz to 1 496 MHz	[i.17] and [i.18]
33	Transmit and Receive	1 900 MHz to 1 920 MHz	[i.22]
34	Transmit and Receive	2 010 MHz to 2 025 MHz	[i.22]
38	Transmit and Receive	2 570 MHz to 2 620 MHz	[i.24] and [i.25]
40	Transmit and Receive	2 300 MHz to 2 400 MHz	[i.23]
41 (note 7)	Transmit and Receive	2 496 MHz to 2 690 MHz	[i.24] and [i.25]
42	Transmit and Receive	3 400 MHz to 3 600 MHz	[i.26] and [i.27]
43	Transmit and Receive	3 600 MHz to 3 800 MHz	[i.26] and [i.27]
46 (see note 3) (see note 4)	Transmit and Receive	5 150 MHz to 5 925 MHz	[i.29] and [i.30]
65 (see note 5)	Transmit	1 920 MHz to 2 010 MHz	[i.21], [i.22] and [i.28]
	Receive	2 110 MHz to 2 200 MHz	
67	Transmit	N/A	
	Receive	738 MHz to 758 MHz	[i.14] and [i.15]
68	Transmit	698 MHz to 728 MHz	[i.14] and [i.15]
	Receive	753 MHz to 783 MHz	
69 (see note 1)	Transmit	N/A	
	Receive	2 570 MHz to 2 620 MHz	[i.24] and [i.25]
72	Transmit	451 MHz to 456 MHz	[i.16]
	Receive	461 MHz to 466 MHz	
87	Transmit	410 MHz to 415 MHz	[i.16]
	Receive	420 MHz to 425 MHz	
88	Transmit	412 MHz to 417 MHz	[i.16]
	Receive	422 MHz to 427 MHz	

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NOTE 1:	Restricted to E-UTRA operation when carrier aggregation is configured. The downlink operating band is paired with the uplink operating band (external) of the carrier aggregation configuration that is supporting the configured Pcell.
NOTE 2:	In Europe, according to [i.17] and [i.18], radio equipment in band 32 operates between 1 452 MHz and 1 492 MHz.
NOTE 3:	This band is an unlicensed band restricted to licensed-assisted operation using Frame Structure Type 3. In Europe according to [i.29] and [i.30], radio equipment in band 46 operates between 5 150 MHz and 5 725 MHz as in table 1-1A.
NOTE 4:	In this version of the present document, restricted to E-UTRA DL operation when carrier aggregation is configured.
NOTE 5:	A UE that complies with the E-UTRA Band 65 minimum requirements in the present document also complies with the E-UTRA Band 1 minimum requirements. This band includes two frequency ranges that are harmonised in Europe: a) According to [i.21] and [i.22], radio equipment in band n65 operates between 2 110 MHz and 2 170 MHz for the transmitter (F_{DL_low} = 2 110 MHz and F_{DL_high} = 2 170 MHz), and between 1 920 MHz and 1 980 MHz for the receiver (F_{UL_low} = 1 920 MHz and F_{UL_high} = 1 980 MHz). b) Based on [i.29], radio equipment in band n65 operates between 2 170 MHz and 2 200 MHz for the transmitter (F_{DL_low} = 2 170 MHz and F_{DL_high} = 2 200 MHz) and between 1 980 MHz and 2 010 MHz for the receiver (F_{UL_low} = 1 980 MHz and F_{UL_high} = 2 010 MHz) as the Complementary Ground Component (CGC) of a Mobile-satellite service by reference to the present Harmonised Standard.
NOTE 6:	In Europe, according to [i.14], [i.15] and [i.16], radio equipment in band 28 operates between 703 MHz to 736 MHz for the transmitter (F_{UL_low} = 703 MHz and F_{UL_high} = 736 MHz) and between 758 MHz to 791 MHz for the receiver (F_{DL_low} = 758 MHz and F_{DL_high} = 791 MHz).
NOTE 7:	In Europe according to [i.24] and [i.25], radio equipment in band 41 operates between 2 500 MHz and 2 570 MHz (F_{DL_low} = 2 500 MHz and F_{DL_high} = 2 570 MHz).

NOTE 1: The relationship between the present document and essential requirements of article 3.2 of Directive 2014/53/EU [i.2] is given in annex A.

Table 1-1A: Sub-bands for band 46

E-UTRA Band
46a
46b
46c
NOTE: The sub-bands 46a and 46b are restricted to indoor use only.

Table 1-2: E-UTRA UE Intra-band contiguous CA operating bands

E-UTRA CA Band
CA_1
CA_3
CA_7
CA_38
CA_40
CA_41
CA_42

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Table 1-3: E-UTRA UE Inter-band CA operating bands (two bands)

E-UTRA CA Band
CA_1-3
CA_1-7
CA_1-8
CA_1-20
CA_1-41
CA_1-42
CA_1-46
CA_3-7
CA_3-8
CA_3-20
CA_3-28
CA_3-41
CA_3-42
CA_3-46
CA_7-20
CA_7-28
CA_7-46
CA_8-20
CA_8-40
CA_8-41
CA_20-32
CA_41-42
CA_41-46
CA_42-46
CA_20-67

Table 1-4: E-UTRA UE Inter-band CA operating bands (three bands)

E-UTRA CA Band
CA_1-3-8
CA_1-3-20
CA_1-7-20
CA_3-7-20
CA_3-41-42

Table 1-5: Intra-band non-contiguous CA operating bands (with two sub-blocks)

E-UTRA CA Band
CA_3-3
CA_7-7
CA 41-41
CA_42-42

E-UTRA NB-IoT is designed to operate in the E-UTRA operating bands 1, 3, 8, 20, 28 and 65 defined in table 1-1. The present document covers requirements for E-UTRA FDD and E-UTRA TDD User Equipment from 3GPP™ Releases 8, 9, 10, 11, 12, and 13 defined in ETSI TS 136 101 [3]. This includes the requirements for E-UTRA UE operating bands and E-UTRA CA operating bands from 3GPP™ Release 13 defined in ETSI TS 136 101 [3].

NOTE 2: For Band 20:

- For user equipment designed to be mobile or nomadic, the requirements in the present document measured at the antenna port also show conformity to the corresponding requirement defined as Total Radiated Power (TRP), as described in Commission Decision 2010/267/EU [i.6] and ECC Decision (09)03 [i.7].
- For user equipment designed to be fixed or installed, the present document does not address the requirements described in Commission Decision 2010/267/EU [i.6] and ECC Decision (09)03 [i.7].

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The present document contains requirements to demonstrate that radio equipment both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] ETSI TS 136 521-1 (V17.7.0) (07-2023): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Conformance testing (3GPP TS 36.521-1 version 17.7.0 Release 17)".

[2] ETSI TS 136 508 (V17.6.0) (07-2023): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); Common test environments for User Equipment (UE) conformance testing (3GPP TS 36.508 version 17.6.0 Release 17)".

[3] ETSI TS 136 101 (V13.25.0) (07-2023): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception (3GPP TS 36.101 version 13.25.0 Release 13)".

[4] IEC 60068-2-1:2007 ED 6.0: "Environmental testing - Part 2-1: Tests - Test A: Cold".

[5] IEC 60068-2-2:2007 ED 5.0: "Environmental testing - Part 2-2: Tests - Test B: Dry heat".

[6] ETSI TS 137 544 (V16.3.0) (05-2024): "Universal Mobile Telecommunications System (UMTS); LTE; Universal Terrestrial Radio Access (UTRA) and Evolved UTRA (E-UTRA); User Equipment (UE) Over The Air (OTA) performance; Conformance testing (3GPP TS 37.544 version 16.3.0 Release 16)".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] Void.

[i.2] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

[i.3] ETSI EG 203 336 (V1.2.1) (05-2020): "Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU".

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