



**IMT cellular networks;
Harmonised Standard for access to radio spectrum;
Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA)
User Equipment (UE)**

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Reference

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Foreword

This final draft Harmonised European Standard (EN) has been produced by ETSI Technical Committee Mobile Standards Group (MSG), and is now submitted for the Vote phase of the ETSI Standardisation Request deliverable Approval Procedure (SRdAP).

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 harmonised standard includes the following revisions:

- Extension of Over The Air (OTA) antenna performance requirements in terms of Receiver Total Radiated Sensitivity (TRS) and Total Radiated Power (TRP) for devices over 72 mm wide;
- The essential change applicable to 3GPP release 13:
 - The power class 2 requirements for band 41.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	18 months after doa

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.

Sample Document

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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	[i.17] and [i.18]
	Receive	1 452 MHz to 1 496 MHz	
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	[i.14] and [i.15]
	Receive	738 MHz to 758 MHz	
68	Transmit	698 MHz to 728 MHz	[i.14], [i.15] and [i.31]
	Receive	753 MHz to 783 MHz	
69 (see note 1)	Transmit	N/A	[i.24] and [i.25]
	Receive	2 570 MHz to 2 620 MHz	
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	

E-UTRA Band	Direction of UE transmission	E-UTRA operating bands	Related EC/ECC decision
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 ($F_{DL_low} = 2\ 110\ \text{MHz}$ and $F_{DL_high} = 2\ 170\ \text{MHz}$), and between 1 920 MHz and 1 980 MHz for the receiver ($F_{UL_low} = 1\ 920\ \text{MHz}$ and $F_{UL_high} = 1\ 980\ \text{MHz}$).			
b) Based on [i.29], radio equipment in band n65 operates between 2 170 MHz and 2 200 MHz for the transmitter ($F_{DL_low} = 2\ 170\ \text{MHz}$ and $F_{DL_high} = 2\ 200\ \text{MHz}$) and between 1 980 MHz and 2 010 MHz for the receiver ($F_{UL_low} = 1\ 980\ \text{MHz}$ and $F_{UL_high} = 2\ 010\ \text{MHz}$) 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.31], radio equipment in band 28 operates between 703 MHz to 736 MHz for the transmitter ($F_{UL_low} = 703\ \text{MHz}$ and $F_{UL_high} = 736\ \text{MHz}$) and between 758 MHz to 791 MHz for the receiver ($F_{DL_low} = 758\ \text{MHz}$ and $F_{DL_high} = 791\ \text{MHz}$).			
NOTE 7: In Europe according to [i.24] and [i.25], radio equipment in band 41 operates between 2 570 MHz and 2 620 MHz ($F_{DL_low} = 2\ 570\ \text{MHz}$ and $F_{DL_high} = 2\ 620\ \text{MHz}$).			

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

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].