

**IMT cellular networks;
Harmonised Standard for access to radio spectrum;
Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA)
User Equipment (UE)**
(ETSI EN 301 908-13 V13.1.1 (2019-11))

Medieninhaber und Hersteller:
OVE Österreichischer Verband für Elektrotechnik
Austrian Standards Institute

ICS 33.070.01

Copyright © OVE/Austrian Standards Institute – 2020.
Alle Rechte vorbehalten! Nachdruck oder
Vervielfältigung, Aufnahme auf oder in sonstige Medien
oder Datenträger nur mit Zustimmung gestattet!

Ident (IDT) mit ETSI EN 301 908-13 V13.1.1 (2019-11)

Ersatz für siehe nationales Vorwort

**Verkauf von in- und ausländischen Normen und
technischen Regelwerken durch**
Austrian Standards Institute
Heinestraße 38, 1020 Wien
E-Mail: sales@austrian-standards.at
Internet: www.austrian-standards.at
Webshop: www.austrian-standards.at/webshop
Tel.: +43 1 213 00-300
Fax: +43 1 213 00-818

zuständig OVE/Komitee
TK IT-EG
Informationstechnologie, Telekommunikation und
Elektronik

Alle Regelwerke für die Elektrotechnik auch erhältlich bei
OVE Österreichischer Verband für Elektrotechnik
Eschenbachgasse 9, 1010 Wien
E-Mail: verkauf@ove.at
Internet: www.ove.at
Webshop: www.ove.at/webshop
Tel.: +43 1 587 63 73

Nationales Vorwort

Diese Europäische Norm EN 301 908-13 V13.1.1:2019 hat sowohl den Status einer nationalen elektrotechnischen Norm gemäß ETG 1992 als auch den einer nationalen Norm gemäß NormG 2016. Bei ihrer Anwendung ist dieses Nationale Vorwort zu berücksichtigen.

Für den Fall einer undatierten normativen Verweisung (Verweisung auf einen Standard ohne Angabe des Ausgabedatums und ohne Hinweis auf eine Abschnittsnummer, eine Tabelle, ein Bild usw.) bezieht sich die Verweisung auf die jeweils neueste Ausgabe dieses Standards.

Für den Fall einer datierten normativen Verweisung bezieht sich die Verweisung immer auf die in Bezug genommene Ausgabe des Standards.

Der Rechtsstatus dieser nationalen (elektrotechnischen) Norm ist den jeweils geltenden Verordnungen zum Elektrotechnikgesetz zu entnehmen.

Bei mittels Verordnungen zum Elektrotechnikgesetz verbindlich erklärten nationalen (elektrotechnischen) Normen ist zu beachten:

- Hinweise auf Veröffentlichungen beziehen sich, sofern nicht anders angegeben, auf den Stand zum Zeitpunkt der Herausgabe dieser nationalen (elektrotechnischen) Norm. Zum Zeitpunkt der Anwendung dieser nationalen (elektrotechnischen) Norm ist der durch die Verordnungen zum Elektrotechnikgesetz oder gegebenenfalls auf andere Weise festgelegte aktuelle Stand zu berücksichtigen.
- informative Anhänge und Fußnoten sowie normative Verweise und Hinweise auf Fundstellen in anderen, nicht verbindlichen Texten werden von der Verbindlicherklärung nicht erfasst.

Europäische Normen (EN) von ETSI werden gemäß den „Gemeinsamen Regeln“ von CEN/CENELEC durch Veröffentlichung eines identen Titels und Textes in das Gesamtwerk der nationalen (elektrotechnischen) Normen übernommen, wobei der Nummerierung der Zusatz ÖVE/ÖNORM vorangestellt wird.

Der von ETSI übermittelte Normentext wird in englischer Sprache veröffentlicht, da davon ausgegangen werden kann, dass die Anwender der Norm über ausreichende englische Sprachkenntnisse verfügen.

Erläuterung zum Ersatzvermerk

Gemäß Vorwort zur EN wird das späteste Datum, zu dem nationale (elektrotechnische) Normen, die der vorliegenden Norm entgegenstehen, zurückgezogen werden müssen, mit dow (date of withdrawal) festgelegt. Bis zum Zurückziehungsdatum (dow) 2021-08-31 ist somit die Anwendung folgender Norm(en) noch erlaubt:

ÖVE/ÖNORM EN 301 908-13 V11.1.2:2017-10-01.

ETSI EN 301 908-13 V13.1.1 (2019-11)



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

Reference

REN/MSG-TFES-13-13

Keywords3G, 3GPP, cellular, digital, E-UTRA, IMT, LTE,
LTE-Advanced, mobile, radio, regulation, UMTS**ETSI**

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

Important notice

The present document can be downloaded from:
<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status.
Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:
<https://portal.etsi.org/People/CommitteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.
The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2019.
All rights reserved.

DECT™, PLUGTESTS™, UMTS™ and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.
3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and
of the 3GPP Organizational Partners.

oneM2M™ logo is a trademark of ETSI registered for the benefit of its Members and
of the oneM2M Partners.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	11
Foreword.....	11
Modal verbs terminology.....	11
Introduction	12
1 Scope	13
2 References	16
2.1 Normative references	16
2.2 Informative references.....	17
3 Definition of terms, symbols and abbreviations.....	17
3.1 Terms.....	17
3.2 Symbols	21
3.3 Abbreviations	23
4 Technical requirements specifications	24
4.1 Environmental profile.....	24
4.2 Conformance requirements	24
4.2.0 General.....	24
4.2.1 Introduction.....	24
4.2.2 Transmitter Maximum Output Power	25
4.2.2.1 Transmitter maximum output power for Single Carrier.....	25
4.2.2.1.1 Definition.....	25
4.2.2.1.2 Limits	26
4.2.2.1.3 Conformance	26
4.2.2.2 Transmitter output power for Carrier Aggregation (DL CA and UL CA)	26
4.2.2.2.1 Definition.....	26
4.2.2.2.2 Limits	27
4.2.2.2.3 Conformance	28
4.2.2.3 Transmitter output power for UL-MIMO	28
4.2.2.3.1 Definition.....	28
4.2.2.3.2 Limits	28
4.2.2.3.3 Conformance	28
4.2.2.4 Transmitter output power for category NB1	29
4.2.2.4.1 Definition.....	29
4.2.2.4.2 Limits	29
4.2.2.4.3 Conformance	29
4.2.2.5 Transmitter output power for UE category M1	29
4.2.2.5.1 Definition.....	29
4.2.2.5.2 Limits	29
4.2.2.5.3 Conformance	30
4.2.3 Transmitter Spectrum Emission Mask	30
4.2.3.1 Transmitter spectrum emission mask for Single Carrier	30
4.2.3.1.1 Definition.....	30
4.2.3.1.2 Limits	30
4.2.3.1.3 Conformance	31
4.2.3.2 Transmitter spectrum emission mask for Carrier Aggregation (DL CA and UL CA)	31
4.2.3.2.1 Definition.....	31
4.2.3.2.2 Limits	31
4.2.3.2.3 Conformance	33
4.2.3.3 Transmitter spectrum emission mask for UL-MIMO	33
4.2.3.3.1 Definition.....	33
4.2.3.3.2 Limits	33
4.2.3.3.3 Conformance	33
4.2.3.4 Transmitter spectrum emission mask for Multi-Cluster PUSCH within a component carrier	33
4.2.3.4.1 Definition.....	33
4.2.3.4.2 Limits	33

4.2.3.4.3	Conformance	33
4.2.3.5	Transmitter spectrum emission mask for category NB1	33
4.2.3.5.1	Definition.....	33
4.2.3.5.2	Limits	33
4.2.3.5.3	Conformance	34
4.2.4	Transmitter Spurious Emissions	34
4.2.4.1	Transmitter spurious emissions for Single Carrier.....	34
4.2.4.1.1	Definition.....	34
4.2.4.1.2	Limits	34
4.2.4.1.3	Conformance	38
4.2.4.2	Transmitter spurious emissions for Carrier Aggregation (DL CA and UL CA)	38
4.2.4.2.1	Definition.....	38
4.2.4.2.2	Limits	38
4.2.4.2.3	Conformance	44
4.2.4.3	Transmitter spurious emissions for UL-MIMO	44
4.2.4.3.1	Definition.....	44
4.2.4.3.2	Limits	44
4.2.4.3.3	Conformance	44
4.2.4.4	Transmitter spurious emissions for Multi-Cluster PUSCH within a component carrier	44
4.2.4.4.1	Definition.....	44
4.2.4.4.2	Limits	44
4.2.4.4.3	Conformance	45
4.2.4.5	Transmitter spurious emissions for category NB1	45
4.2.4.5.1	Definition.....	45
4.2.4.5.2	Limits	45
4.2.4.5.3	Conformance	45
4.2.5	Transmitter Minimum Output Power.....	45
4.2.5.1	Transmitter minimum output power for Single Carrier.....	45
4.2.5.1.1	Definition.....	45
4.2.5.1.2	Limits	45
4.2.5.1.3	Conformance	45
4.2.5.2	Transmitter minimum output power for Carrier Aggregation (DL CA and UL CA)	46
4.2.5.2.1	Definition.....	46
4.2.5.2.2	Limits	46
4.2.5.2.3	Conformance	46
4.2.5.3	Transmitter minimum output power for UL-MIMO	46
4.2.5.3.1	Definition.....	46
4.2.5.3.2	Limits	46
4.2.5.3.3	Conformance	47
4.2.5.4	Transmitter minimum output power for category NB1	47
4.2.5.4.1	Definition.....	47
4.2.5.4.2	Limits	47
4.2.5.4.3	Conformance	47
4.2.6	Receiver Adjacent Channel Selectivity (ACS)	47
4.2.6.1	Receiver Adjacent Channel Selectivity (ACS) for Single Carrier	47
4.2.6.1.1	Definition.....	47
4.2.6.1.2	Limits	47
4.2.6.1.3	Conformance	48
4.2.6.2	Receiver Adjacent Channel Selectivity (ACS) for Carrier Aggregation in DL-only bands	48
4.2.6.2.1	Definition.....	48
4.2.6.2.2	Limits	49
4.2.6.2.3	Conformance	49
4.2.6.3	Receiver Adjacent Channel Selectivity (ACS) for category NB1	50
4.2.6.3.1	Definition.....	50
4.2.6.3.2	Limits	50
4.2.6.3.3	Conformance	50
4.2.7	Receiver Blocking Characteristics	50
4.2.7.1	Receiver Blocking Characteristics for Single Carrier	50
4.2.7.1.1	Definition.....	50
4.2.7.1.2	Limits	50
4.2.7.1.3	Conformance	52
4.2.7.2	Receiver Blocking Characteristics for Carrier Aggregation in DL-only bands.....	52

4.2.7.2.1	Definition.....	52
4.2.7.2.2	Limits	53
4.2.7.2.3	Conformance	55
4.2.7.3	Receiver Blocking Characteristics for category NB1	56
4.2.7.3.1	Definition.....	56
4.2.7.3.2	Limits	56
4.2.7.3.3	Conformance	57
4.2.8	Receiver Spurious Response.....	57
4.2.8.1	Receiver Spurious Response for Single Carrier	57
4.2.8.1.1	Definition.....	57
4.2.8.1.2	Limits	57
4.2.8.1.3	Conformance	58
4.2.8.2	Receiver Spurious Response for Carrier Aggregation in DL-only bands	58
4.2.8.2.1	Definition.....	58
4.2.8.2.2	Limits	58
4.2.8.2.3	Conformance	58
4.2.8.3	Receiver Spurious Response for category NB1	58
4.2.8.3.1	Definition.....	58
4.2.8.3.2	Limits	58
4.2.8.3.3	Conformance	59
4.2.9	Receiver Intermodulation Characteristic	59
4.2.9.1	Receiver Intermodulation Characteristics for Single Carrier	59
4.2.9.1.1	Definition.....	59
4.2.9.1.2	Limits	59
4.2.9.1.3	Conformance	59
4.2.9.2	Receiver Intermodulation Characteristics for Carrier Aggregation in DL-only bands.....	60
4.2.9.2.1	Definition.....	60
4.2.9.2.2	Limits	60
4.2.9.2.3	Conformance	60
4.2.9.3	Receiver Intermodulation Characteristics for category NB1	60
4.2.9.3.1	Definition.....	60
4.2.9.3.2	Limits	61
4.2.9.3.3	Conformance	61
4.2.10	Receiver Spurious Emissions.....	61
4.2.10.1	Receiver Spurious Emissions for Single Carrier	61
4.2.10.1.1	Definition.....	61
4.2.10.1.2	Limits	61
4.2.10.1.3	Conformance	61
4.2.10.2	Receiver Spurious Emissions in DL-only bands	61
4.2.10.2.1	Definition.....	61
4.2.10.2.2	Limits	62
4.2.10.2.3	Conformance	62
4.2.11	Transmitter Adjacent Channel Leakage Power Ratio.....	62
4.2.11.1	Transmitter adjacent channel leakage power ratio for Single Carrier	62
4.2.11.1.1	Definition.....	62
4.2.11.1.2	Limits	62
4.2.11.1.3	Conformance	63
4.2.11.2	Transmitter adjacent channel leakage power ratio for Carrier Aggregation (DL CA and UL CA).....	63
4.2.11.2.1	Definition.....	63
4.2.11.2.2	Limits for CA UTRA.....	64
4.2.11.2.3	Limits for CA EUTRA	65
4.2.11.2.4	Conformance	65
4.2.11.3	Transmitter adjacent channel leakage power ratio for UL-MIMO.....	65
4.2.11.3.1	Definition.....	65
4.2.11.3.2	Limits	66
4.2.11.3.3	Conformance	67
4.2.11.4	Transmitter adjacent channel leakage power ratio for Multi-Cluster PUSCH within a component carrier	67
4.2.11.4.1	Definition.....	67
4.2.11.4.2	Limits	67
4.2.11.4.3	Conformance	67
4.2.11.5	Transmitter adjacent channel leakage power ratio for category NB1	67

4.2.11.5.1	Definition.....	67
4.2.11.5.2	Limits	67
4.2.11.5.3	Conformance	68
4.2.12	Receiver Reference Sensitivity Level	68
4.2.12.0	General	68
4.2.12.1	Receiver Reference Sensitivity Level for Single Carrier	68
4.2.12.1.1	Definition.....	68
4.2.12.1.2	Limits	68
4.2.12.1.3	Conformance	68
4.2.12.2	Receiver Reference Sensitivity Level for Carrier Aggregation in DL-only bands.....	69
4.2.12.2.1	Definition.....	69
4.2.12.2.2	Limits	69
4.2.12.2.3	Conformance	70
4.2.12.3	Receiver Reference Sensitivity Level for category NB1.....	70
4.2.12.3.1	Definition.....	70
4.2.12.3.2	Limits	70
4.2.12.3.3	Conformance	70
4.2.12.4	Receiver Reference Sensitivity Level for UE category 0.....	70
4.2.12.4.1	Definition.....	70
4.2.12.4.2	Limits	70
4.2.12.4.3	Conformance	71
4.2.12.5	Receiver Reference Sensitivity Level for UE category M1	71
4.2.12.5.1	Definition.....	71
4.2.12.5.2	Limits	71
4.2.12.5.3	Conformance	72
5	Testing for compliance with technical requirements.....	73
5.1	Environmental conditions for testing	73
5.2	Interpretation of the measurement results	73
5.3	Essential radio test suites.....	73
5.3.0	General.....	73
5.3.1	Transmitter Maximum Output Power	73
5.3.1.1	Transmitter maximum output power for Single Carrier.....	73
5.3.1.1.1	Method of test.....	73
5.3.1.1.2	Test requirements	74
5.3.1.2	Transmitter maximum output power for intra-band contiguous Carrier Aggregation (DL CA and UL CA)	74
5.3.1.2.1	Method of test.....	74
5.3.1.2.2	Test requirements	75
5.3.1.2A	Transmitter maximum output power for inter-band Carrier Aggregation (DL CA and UL CA).....	75
5.3.1.2A.1	Method of test.....	75
5.3.1.2A.2	Test requirements	76
5.3.1.3	Transmitter maximum output power for UL-MIMO	76
5.3.1.3.1	Method of test.....	76
5.3.1.3.2	Test requirements	77
5.3.1.4	Transmitter maximum output power for category NB1	77
5.3.1.4.1	Method of Test	77
5.3.1.4.2	Test requirements	78
5.3.1.5	Transmitter maximum output power for UE category 0	78
5.3.1.5.1	Method of test.....	78
5.3.1.5.2	Test requirements	78
5.3.1.6	Transmitter maximum output power for UE category M1	78
5.3.1.6.1	Method of test.....	78
5.3.1.6.2	Test requirements	79
5.3.2	Transmitter Spectrum Emission Mask	79
5.3.2.1	Transmitter spectrum emission mask for Single Carrier	79
5.3.2.1.1	Method of test.....	79
5.3.2.1.2	Test requirements	80
5.3.2.2	Transmitter spectrum emission mask for intra-band contiguous Carrier Aggregation (DL CA and UL CA)	80
5.3.2.2.1	Method of test.....	80
5.3.2.2.2	Test requirements	81

5.3.2.2A	Transmitter spectrum emission mask for inter-band Carrier Aggregation (DL CA and UL CA)	81
5.3.2.2A.1	Method of test.....	81
5.3.2.2A.2	Test requirements	82
5.3.2.3	Transmitter spectrum emission mask for UL-MIMO	82
5.3.2.3.1	Method of test.....	82
5.3.2.3.2	Test requirements	83
5.3.2.4	Transmitter spectrum emission mask for Multi-Cluster PUSCH within a component carrier.....	83
5.3.2.4.1	Method of test.....	83
5.3.2.4.2	Test requirements	84
5.3.2.5	Transmitter spectrum emission mask for category NB1	84
5.3.2.5.1	Method of test.....	84
5.3.2.5.2	Test requirements	84
5.3.2.6	Transmitter spectrum emission mask for UE category 0	85
5.3.2.6.1	Method of test.....	85
5.3.2.6.2	Test requirements	85
5.3.2.7	Transmitter spectrum emission mask for UE category M1	85
5.3.2.7.1	Method of test.....	85
5.3.2.7.2	Test requirements	86
5.3.3	Transmitter Spurious Emissions	86
5.3.3.1	Transmitter spurious emissions for Single Carrier.....	86
5.3.3.1.1	Method of test.....	86
5.3.3.1.2	Test requirements	87
5.3.3.2	Transmitter spurious emissions for intra-band contiguous Carrier Aggregation (DL CA and UL CA).....	87
5.3.3.2.1	Method of test.....	87
5.3.3.2.2	Test requirements	88
5.3.3.2A	Transmitter spurious emissions for inter-band Carrier Aggregation (DL CA and UL CA).....	88
5.3.3.2A.1	Method of test.....	88
5.3.3.2A.2	Test requirements	89
5.3.3.3	Transmitter spurious emissions for UL-MIMO	89
5.3.3.3.1	Method of test.....	89
5.3.3.3.2	Test requirements	90
5.3.3.4	Transmitter spurious emissions for Multi-Cluster PUSCH within a component carrier.....	90
5.3.3.4.1	Method of test.....	90
5.3.3.4.2	Test requirements	90
5.3.3.5	Transmitter spurious emissions for category NB1	91
5.3.3.5.1	Method of test.....	91
5.3.3.5.2	Test requirements	91
5.3.3.6	Transmitter spurious emissions for UE category 0	92
5.3.3.6.1	Method of test.....	92
5.3.3.6.2	Test requirements	92
5.3.3.7	Transmitter spurious emissions for UE category M1	92
5.3.3.7.1	Method of test.....	92
5.3.3.7.2	Test requirements	93
5.3.4	Transmitter Minimum Output Power.....	93
5.3.4.1	Transmitter minimum output power for Single Carrier.....	93
5.3.4.1.1	Method of test.....	93
5.3.4.1.2	Test requirements	94
5.3.4.2	Transmitter minimum output power for intra-band contiguous Carrier Aggregation (DL CA and UL CA)	94
5.3.4.2.1	Method of test.....	94
5.3.4.2.2	Test requirements	95
5.3.4.2A	Transmitter minimum output power for inter-band Carrier Aggregation (DL CA and UL CA).....	95
5.3.4.2A.1	Method of test.....	95
5.3.4.2A.2	Test requirements	96
5.3.4.3	Transmitter minimum output power for UL-MIMO	96
5.3.4.3.1	Method of test.....	96
5.3.4.3.2	Test requirements	97
5.3.4.4	Transmitter minimum output power for category NB1	97
5.3.4.4.1	Method of test.....	97
5.3.4.4.2	Test requirements	97
5.3.4.5	Transmitter minimum output power for UE category 0	98

5.3.4.5.1	Method of test.....	98
5.3.4.5.2	Test requirements	98
5.3.4.6	Transmitter minimum output power for UE category M1	98
5.3.4.6.1	Method of test.....	98
5.3.4.6.2	Test requirements	99
5.3.5	Receiver Adjacent Channel Selectivity (ACS)	99
5.3.5.1	Receiver Adjacent Channel Selectivity (ACS) for Single Carrier	99
5.3.5.1.1	Method of test.....	99
5.3.5.1.2	Test requirements	100
5.3.5.2	Receiver Adjacent Channel Selectivity (ACS) for Carrier Aggregation in DL-only bands.....	100
5.3.5.2.1	Method of test.....	100
5.3.5.2.2	Test requirements	101
5.3.5.3	Receiver Adjacent Channel Selectivity (ACS) for category NB1.....	101
5.3.5.3.1	Method of test.....	101
5.3.5.3.2	Test requirements	103
5.3.5.4	Receiver Adjacent Channel Selectivity (ACS) for UE category 0.....	103
5.3.5.4.1	Method of test.....	103
5.3.5.4.2	Test requirements	103
5.3.5.5	Receiver Adjacent Channel Selectivity (ACS) for UE category M1	103
5.3.5.5.1	Method of test.....	103
5.3.5.5.2	Test requirements	104
5.3.6	Receiver Blocking Characteristics	105
5.3.6.1	Receiver Blocking Characteristics for Single Carrier	105
5.3.6.1.1	Method of test.....	105
5.3.6.1.2	Test requirements	106
5.3.6.2	Receiver Blocking Characteristics for Carrier Aggregation in DL-only bands.....	107
5.3.6.2.1	Method of test.....	107
5.3.6.2.2	Test requirements	109
5.3.6.3	Receiver Blocking Characteristics for category NB1	109
5.3.6.3.1	Method of test.....	109
5.3.6.3.2	Test requirements	110
5.3.6.4	Receiver Blocking Characteristics for UE category 0.....	110
5.3.6.4.1	Method of test.....	110
5.3.6.4.2	Test requirements	111
5.3.6.5	Receiver Blocking Characteristics for UE category M1	111
5.3.6.5.1	Method of test.....	111
5.3.6.5.2	Test requirements	113
5.3.7	Receiver Spurious Response.....	113
5.3.7.1	Receiver Spurious Response for Single Carrier	113
5.3.7.1.1	Method of test.....	113
5.3.7.1.2	Test requirements	113
5.3.7.2	Receiver Spurious Response for Carrier Aggregation in DL-only bands	113
5.3.7.2.1	Method of test.....	113
5.3.7.2.2	Test requirements	114
5.3.7.3	Receiver Spurious Response for category NB1	114
5.3.7.3.1	Method of test.....	114
5.3.7.3.2	Test requirements	114
5.3.7.4	Receiver Spurious Response for UE category 0.....	115
5.3.7.4.1	Method of test.....	115
5.3.7.4.2	Test requirements	115
5.3.7.5	Receiver Spurious Response for UE category M1	115
5.3.7.5.1	Method of test.....	115
5.3.7.5.2	Test requirements	115
5.3.8	Receiver Intermodulation Characteristics	116
5.3.8.1	Receiver Intermodulation Characteristics for Single Carrier	116
5.3.8.1.1	Method of test.....	116
5.3.8.1.2	Test requirements	116
5.3.8.2	Receiver Intermodulation Characteristics for Carrier Aggregation in DL-only bands.....	117
5.3.8.2.1	Method of test.....	117
5.3.8.2.2	Test requirements	118
5.3.8.3	Receiver Intermodulation Characteristics for category NB1	118
5.3.8.3.1	Test requirements	118

5.3.8.3.2	Test requirements	118
5.3.8.4	Receiver Intermodulation Characteristics for UE category 0.....	119
5.3.8.4.1	Method of test.....	119
5.3.8.4.2	Test requirements	119
5.3.8.5	Receiver Intermodulation Characteristics for UE category M1	119
5.3.8.5.1	Method of test.....	119
5.3.8.5.2	Test requirements	120
5.3.9	Receiver Spurious Emissions.....	120
5.3.9.1	Receiver Spurious Emissions for Single Carrier	120
5.3.9.1.1	Method of test.....	120
5.3.9.1.2	Test requirements	121
5.3.9.2	Receiver Spurious Emissions in DL-only bands	121
5.3.9.2.1	Method of test.....	121
5.3.9.2.2	Test requirements	121
5.3.9.3	Receiver Spurious Emissions for UE category 0	122
5.3.9.3.1	Method of test.....	122
5.3.9.3.2	Test requirements	122
5.3.9.4	Receiver Spurious Emissions for UE category M1	122
5.3.9.4.1	Method of test.....	122
5.3.9.4.2	Test requirements	123
5.3.9.5	Receiver Spurious Emissions for UE category NB1	123
5.3.9.5.1	Method of test.....	123
5.3.9.5.2	Test requirements	123
5.3.10	Transmitter Adjacent Channel Leakage Power Ratio	123
5.3.10.1	Transmitter adjacent channel leakage power ratio for Single Carrier	123
5.3.10.1.1	Method of test.....	123
5.3.10.1.2	Test requirements	124
5.3.10.2	Transmitter adjacent channel leakage power ratio for intra-band contiguous Carrier Aggregation (DL CA and UL CA).....	124
5.3.10.2.1	Method of test.....	124
5.3.10.2.2	Test requirements	125
5.3.10.2A	Transmitter adjacent channel leakage power ratio for inter-band Carrier Aggregation (DL CA and UL CA).....	126
5.3.10.2A.1	Method of test.....	126
5.3.10.2A.2	Test requirements	127
5.3.10.3	Transmitter adjacent channel leakage power ratio for UL-MIMO.....	127
5.3.10.3.1	Method of test.....	127
5.3.10.3.2	Test requirements	128
5.3.10.4	Transmitter adjacent channel leakage power ratio for Multi-Cluster PUSCH within a component carrier	128
5.3.10.4.1	Method of test.....	128
5.3.10.4.2	Test requirements	129
5.3.10.5	Transmitter adjacent channel leakage power ratio for category NB1	129
5.3.10.5.1	Method of test.....	129
5.3.10.5.2	Test requirements	130
5.3.10.6	Transmitter adjacent channel leakage power ratio for UE category 0.....	130
5.3.10.6.1	Method of test.....	130
5.3.10.6.2	Test requirements	130
5.3.10.7	Transmitter adjacent channel leakage power ratio for UE category M1	130
5.3.10.7.1	Method of test.....	130
5.3.10.7.2	Test requirements	131
5.3.11	Receiver Reference Sensitivity Level	131
5.3.11.1	Receiver Reference Sensitivity Level for Single Carrier	131
5.3.11.1.1	Method of test.....	131
5.3.11.1.2	Test requirements	132
5.3.11.2	Receiver Reference Sensitivity Level for Carrier Aggregation in DL-only bands.....	132
5.3.11.2.1	Method of test.....	132
5.3.11.2.2	Test requirements	133
5.3.11.3	Receiver Reference Sensitivity Level for category NB1.....	133
5.3.11.3.1	Method of test.....	133
5.3.11.3.2	Test requirements	134
5.3.11.4	Receiver Reference Sensitivity Level for UE category 0.....	134

5.3.11.4.1	Method of test.....	134
5.3.11.4.2	Test requirements	134
5.3.11.5	Receiver Reference Sensitivity Level for UE category M1	135
5.3.11.5.1	Method of test.....	135
5.3.11.5.2	Test requirements	135
Annex A (informative):	Relationship between the present document and the essential requirements of Directive 2014/53/EU	136
Annex B (normative):	Environmental profile	138
B.1	General	138
B.1.1	Introduction	138
B.1.2	Temperature	138
B.1.3	Voltage	138
B.1.4	Test environment.....	139
Annex C (informative):	Recommended maximum measurement uncertainty	140
Annex D (informative):	Bibliography	141
Annex E (informative):	Change history	142
History	143	

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

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].

National transposition dates	
Date of adoption of this EN:	25 November 2019
Date of latest announcement of this EN (doa):	29 February 2020
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2020
Date of withdrawal of any conflicting National Standard (dow):	31 August 2021

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.

Copyright ÖVE

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
1	Transmit	1 920 MHz to 1 980 MHz
	Receive	2 110 MHz to 2 170 MHz
3	Transmit	1 710 MHz to 1 785 MHz
	Receive	1 805 MHz to 1 880 MHz
7	Transmit	2 500 MHz to 2 570 MHz
	Receive	2 620 MHz to 2 690 MHz
8	Transmit	880 MHz to 915 MHz
	Receive	925 MHz to 960 MHz
20	Transmit	832 MHz to 862 MHz
	Receive	791 MHz to 821 MHz
22	Transmit	3 410 MHz to 3 490 MHz
	Receive	3 510 MHz to 3 590 MHz
28 (see note 6)	Transmit	703 MHz to 748 MHz
	Receive	758 MHz to 803 MHz
31	Transmit	452,5 MHz to 457,5 MHz
	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
33	Transmit and Receive	1 900 MHz to 1 920 MHz
34	Transmit and Receive	2 010 MHz to 2 025 MHz
38	Transmit and Receive	2 570 MHz to 2 620 MHz
40	Transmit and Receive	2 300 MHz to 2 400 MHz
42	Transmit and Receive	3 400 MHz to 3 600 MHz
43	Transmit and Receive	3 600 MHz to 3 800 MHz
46 (see note 3) (see note 4)	Transmit and Receive	5 150 MHz to 5 925 MHz
65 (see note 5)	Transmit	1 920 MHz to 2 010 MHz
	Receive	2 110 MHz to 2 200 MHz
67	Transmit	N/A
	Receive	738 MHz to 758 MHz
68	Transmit	698 MHz to 728 MHz
	Receive	753 MHz to 783 MHz
69 (see note 1)	Transmit	N/A
	Receive	2 570 MHz to 2 620 MHz

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: Radio equipment in band 32 is only allowed to operate 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.

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.

NOTE 6: Radio equipment in band 28 is only allowed to operate between 758 MHz to 791 MHz for the transmitter and between 703 MHz to 736 MHz for the receiver.

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.