

# 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)**

Standard PREVIEW  
Full standard: <https://standards.iteh.ai/catalog/standards/sist/501d4d3a-7-aaa9-4cd9-acf4-02b14ed3b879/etsi-en-301-908-13-v13-1-1-2019-08>

---

**Reference**

REN/MSG-TFES-13-13

---

**Keywords**

3G, 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](http://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/CommiteeSupportStaff.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
<b>Annex A (informative):</b>	<b>Relationship between the present document and the essential requirements of Directive 2014/53/EU .....</b>	<b>136</b>
<b>Annex B (normative):</b>	<b>Environmental profile .....</b>	<b>138</b>
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
<b>Annex C (informative):</b>	<b>Recommended maximum measurement uncertainty .....</b>	<b>140</b>
<b>Annex D (informative):</b>	<b>Bibliography .....</b>	<b>141</b>
<b>Annex E (informative):</b>	<b>Change history .....</b>	<b>142</b>
History .....		143

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/1d407da7-eaa9-4cd9-acf4-02b14ed3b879/etsi-en-301-908-13-v13.0.1-2019-08>

## 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.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/1d407da7-eaa9-4cd9-acf4-02b14ed3b879/etsi-en-301-908-13-v13.0.1-2019-08>

# 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.