

**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 V13.3.1 (2024-10))

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Contents

Intellectual Property Rights	11
Foreword.....	11
Modal verbs terminology.....	12
Introduction	12
1 Scope	13
2 References	16
2.1 Normative references	16
2.2 Informative references.....	16
3 Definition of terms, symbols and abbreviations.....	18
3.1 Terms.....	18
3.2 Symbols.....	21
3.3 Abbreviations	23
4 Technical requirements specifications	25
4.1 Environmental profile.....	25
4.2 Conformance requirements	25
4.2.0 General.....	25
4.2.1 Introduction.....	25
4.2.2 Transmitter Maximum Output Power	26
4.2.2.1 Transmitter maximum output power for Single Carrier.....	26
4.2.2.1.1 Definition.....	26
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	34
4.2.3.3.3 Conformance	34
4.2.3.4 Transmitter spectrum emission mask for Multi-Cluster PUSCH within a component carrier	34
4.2.3.4.1 Definition.....	34
4.2.3.4.2 Limits	34

4.2.3.4.3	Conformance	34
4.2.3.5	Transmitter spectrum emission mask for category NB1	34
4.2.3.5.1	Definition.....	34
4.2.3.5.2	Limits	34
4.2.3.5.3	Conformance	34
4.2.4	Transmitter Spurious Emissions	35
4.2.4.1	Transmitter spurious emissions for Single Carrier	35
4.2.4.1.1	Definition.....	35
4.2.4.1.2	Limits	35
4.2.4.1.3	Conformance	39
4.2.4.2	Transmitter spurious emissions for Carrier Aggregation (DL CA and UL CA)	40
4.2.4.2.1	Definition.....	40
4.2.4.2.2	Limits	40
4.2.4.2.3	Conformance	45
4.2.4.3	Transmitter spurious emissions for UL-MIMO	45
4.2.4.3.1	Definition.....	45
4.2.4.3.2	Limits	45
4.2.4.3.3	Conformance	45
4.2.4.4	Transmitter spurious emissions for Multi-Cluster PUSCH within a component carrier	45
4.2.4.4.1	Definition.....	45
4.2.4.4.2	Limits	45
4.2.4.4.3	Conformance	46
4.2.4.5	Transmitter spurious emissions for category NB1	46
4.2.4.5.1	Definition.....	46
4.2.4.5.2	Limits	46
4.2.4.5.3	Conformance	46
4.2.5	Transmitter Minimum Output Power.....	46
4.2.5.1	Transmitter minimum output power for Single Carrier.....	46
4.2.5.1.1	Definition.....	46
4.2.5.1.2	Limits	46
4.2.5.1.3	Conformance	46
4.2.5.2	Transmitter minimum output power for Carrier Aggregation (DL CA and UL CA)	47
4.2.5.2.1	Definition.....	47
4.2.5.2.2	Limits	47
4.2.5.2.3	Conformance	47
4.2.5.3	Transmitter minimum output power for UL-MIMO	47
4.2.5.3.1	Definition.....	47
4.2.5.3.2	Limits	47
4.2.5.3.3	Conformance	48
4.2.5.4	Transmitter minimum output power for category NB1.....	48
4.2.5.4.1	Definition.....	48
4.2.5.4.2	Limits	48
4.2.5.4.3	Conformance	48
4.2.6	Receiver Adjacent Channel Selectivity (ACS)	48
4.2.6.1	Receiver Adjacent Channel Selectivity (ACS) for Single Carrier	48
4.2.6.1.1	Definition.....	48
4.2.6.1.2	Limits	48
4.2.6.1.3	Conformance	49
4.2.6.2	Receiver Adjacent Channel Selectivity (ACS) for Carrier Aggregation in DL-only bands	49
4.2.6.2.1	Definition.....	49
4.2.6.2.2	Limits	50
4.2.6.2.3	Conformance	50
4.2.6.3	Receiver Adjacent Channel Selectivity (ACS) for category NB1.....	51
4.2.6.3.1	Definition.....	51
4.2.6.3.2	Limits	51
4.2.6.3.3	Conformance	51
4.2.7	Receiver Blocking Characteristics	51
4.2.7.1	Receiver Blocking Characteristics for Single Carrier	51
4.2.7.1.1	Definition.....	51
4.2.7.1.2	Limits	51
4.2.7.1.3	Conformance	53
4.2.7.2	Receiver Blocking Characteristics for Carrier Aggregation in DL-only bands.....	53

4.2.7.2.1	Definition.....	53
4.2.7.2.2	Limits	54
4.2.7.2.3	Conformance	56
4.2.7.3	Receiver Blocking Characteristics for category NB1	57
4.2.7.3.1	Definition.....	57
4.2.7.3.2	Limits	57
4.2.7.3.3	Conformance	58
4.2.8	Receiver Spurious Response.....	58
4.2.8.1	Receiver Spurious Response for Single Carrier	58
4.2.8.1.1	Definition.....	58
4.2.8.1.2	Limits	59
4.2.8.1.3	Conformance	59
4.2.8.2	Receiver Spurious Response for Carrier Aggregation in DL-only bands	59
4.2.8.2.1	Definition.....	59
4.2.8.2.2	Limits	59
4.2.8.2.3	Conformance	59
4.2.8.3	Receiver Spurious Response for category NB1	59
4.2.8.3.1	Definition.....	59
4.2.8.3.2	Limits	60
4.2.8.3.3	Conformance	60
4.2.9	Receiver Intermodulation Characteristic	60
4.2.9.1	Receiver Intermodulation Characteristics for Single Carrier	60
4.2.9.1.1	Definition.....	60
4.2.9.1.2	Limits	60
4.2.9.1.3	Conformance	61
4.2.9.2	Receiver Intermodulation Characteristics for Carrier Aggregation in DL-only bands.....	61
4.2.9.2.1	Definition.....	61
4.2.9.2.2	Limits	61
4.2.9.2.3	Conformance	62
4.2.9.3	Receiver Intermodulation Characteristics for category NB1	62
4.2.9.3.1	Definition.....	62
4.2.9.3.2	Limits	62
4.2.9.3.3	Conformance	62
4.2.10	Receiver Spurious Emissions.....	63
4.2.10.1	Receiver Spurious Emissions for Single Carrier	63
4.2.10.1.1	Definition.....	63
4.2.10.1.2	Limits	63
4.2.10.1.3	Conformance	63
4.2.10.2	Receiver Spurious Emissions in DL-only bands	63
4.2.10.2.1	Definition.....	63
4.2.10.2.2	Limits	63
4.2.10.2.3	Conformance	63
4.2.11	Transmitter Adjacent Channel Leakage Power Ratio	64
4.2.11.1	Transmitter adjacent channel leakage power ratio for Single Carrier	64
4.2.11.1.1	Definition.....	64
4.2.11.1.2	Limits	64
4.2.11.1.3	Conformance	65
4.2.11.2	Transmitter adjacent channel leakage power ratio for Carrier Aggregation (DL CA and UL CA).....	65
4.2.11.2.1	Definition.....	65
4.2.11.2.2	Limits for CA UTRA.....	66
4.2.11.2.3	Limits for CA EUTRA	67
4.2.11.2.4	Conformance	68
4.2.11.3	Transmitter adjacent channel leakage power ratio for UL-MIMO.....	68
4.2.11.3.1	Definition.....	68
4.2.11.3.2	Limits	68
4.2.11.3.3	Conformance	69
4.2.11.4	Transmitter adjacent channel leakage power ratio for Multi-Cluster PUSCH within a component carrier	69
4.2.11.4.1	Definition.....	69
4.2.11.4.2	Limits	70
4.2.11.4.3	Conformance	70
4.2.11.5	Transmitter adjacent channel leakage power ratio for category NB1	70

4.2.11.5.1	Definition.....	70
4.2.11.5.2	Limits	70
4.2.11.5.3	Conformance	70
4.2.12	Receiver Reference Sensitivity Level	71
4.2.12.0	General	71
4.2.12.1	Receiver Reference Sensitivity Level for Single Carrier	71
4.2.12.1.1	Definition.....	71
4.2.12.1.2	Limits	71
4.2.12.1.3	Conformance	72
4.2.12.2	Receiver Reference Sensitivity Level for Carrier Aggregation in DL-only bands.....	72
4.2.12.2.1	Definition.....	72
4.2.12.2.2	Limits	72
4.2.12.2.3	Conformance	73
4.2.12.3	Receiver Reference Sensitivity Level for category NB1.....	73
4.2.12.3.1	Definition.....	73
4.2.12.3.2	Limits	73
4.2.12.3.3	Conformance	73
4.2.12.4	Receiver Reference Sensitivity Level for UE category 0	73
4.2.12.4.1	Definition.....	73
4.2.12.4.2	Limits	73
4.2.12.4.3	Conformance	74
4.2.12.5	Receiver Reference Sensitivity Level for UE category M1	74
4.2.12.5.1	Definition.....	74
4.2.12.5.2	Limits	74
4.2.12.5.3	Conformance	75
4.2.13	Receiver Total Radiated Sensitivity (TRS).....	76
4.2.13.0	Applicability.....	76
4.2.13.1	Definition	76
4.2.13.2	Limits	77
4.2.13.3	Conformance.....	77
4.2.14	Total Radiated Power (TRP).....	77
4.2.14.0	Applicability.....	77
4.2.14.1	Definition	77
4.2.14.2	Limits	78
5	Testing for compliance with technical requirements.....	79
5.1	Environmental conditions for testing	79
5.2	Void.....	79
5.3	Essential radio test suites.....	79
5.3.0	General.....	79
5.3.1	Transmitter Maximum Output Power	80
5.3.1.1	Transmitter maximum output power for Single Carrier	80
5.3.1.1.1	Method of test.....	80
5.3.1.1.2	Test requirements	80
5.3.1.2	Transmitter maximum output power for intra-band contiguous Carrier Aggregation (DL CA and UL CA)	81
5.3.1.2.1	Method of test.....	81
5.3.1.2.2	Test requirements	81
5.3.1.2A	Transmitter maximum output power for inter-band Carrier Aggregation (DL CA and UL CA).....	82
5.3.1.2A.1	Method of test.....	82
5.3.1.2A.2	Test requirements	82
5.3.1.3	Transmitter maximum output power for UL-MIMO	83
5.3.1.3.1	Method of test.....	83
5.3.1.3.2	Test requirements	83
5.3.1.4	Transmitter maximum output power for category NB1	83
5.3.1.4.1	Method of Test	83
5.3.1.4.2	Test requirements	84
5.3.1.5	Transmitter maximum output power for UE category 0	84
5.3.1.5.1	Method of test.....	84
5.3.1.5.2	Test requirements	85
5.3.1.6	Transmitter maximum output power for UE category M1.....	85
5.3.1.6.1	Method of test.....	85

5.3.1.6.2	Test requirements	85
5.3.2	Transmitter Spectrum Emission Mask.....	86
5.3.2.1	Transmitter spectrum emission mask for Single Carrier.....	86
5.3.2.1.1	Method of test.....	86
5.3.2.1.2	Test requirements	86
5.3.2.2	Transmitter spectrum emission mask for intra-band contiguous Carrier Aggregation (DL CA and UL CA)	87
5.3.2.2.1	Method of test.....	87
5.3.2.2.2	Test requirements	87
5.3.2.2A	Transmitter spectrum emission mask for inter-band Carrier Aggregation (DL CA and UL CA)	88
5.3.2.2A.1	Method of test.....	88
5.3.2.2A.2	Test requirements	89
5.3.2.3	Transmitter spectrum emission mask for UL-MIMO	89
5.3.2.3.1	Method of test.....	89
5.3.2.3.2	Test requirements	89
5.3.2.4	Transmitter spectrum emission mask for Multi-Cluster PUSCH within a component carrier	90
5.3.2.4.1	Method of test.....	90
5.3.2.4.2	Test requirements	90
5.3.2.5	Transmitter spectrum emission mask for category NB1	91
5.3.2.5.1	Method of test.....	91
5.3.2.5.2	Test requirements	91
5.3.2.6	Transmitter spectrum emission mask for UE category 0	92
5.3.2.6.1	Method of test.....	92
5.3.2.6.2	Test requirements	92
5.3.2.7	Transmitter spectrum emission mask for UE category M1	92
5.3.2.7.1	Method of test.....	92
5.3.2.7.2	Test requirements	93
5.3.3	Transmitter Spurious Emissions	93
5.3.3.1	Transmitter spurious emissions for Single Carrier	93
5.3.3.1.1	Method of test.....	93
5.3.3.1.2	Test requirements	94
5.3.3.2	Transmitter spurious emissions for intra-band contiguous Carrier Aggregation (DL CA and UL CA).....	94
5.3.3.2.1	Method of test.....	94
5.3.3.2.2	Test requirements	95
5.3.3.2A	Transmitter spurious emissions for inter-band Carrier Aggregation (DL CA and UL CA)	95
5.3.3.2A.1	Method of test.....	95
5.3.3.2A.2	Test requirements	96
5.3.3.3	Transmitter spurious emissions for UL-MIMO	96
5.3.3.3.1	Method of test.....	96
5.3.3.3.2	Test requirements	97
5.3.3.4	Transmitter spurious emissions for Multi-Cluster PUSCH within a component carrier	97
5.3.3.4.1	Method of test.....	97
5.3.3.4.2	Test requirements	97
5.3.3.5	Transmitter spurious emissions for category NB1	98
5.3.3.5.1	Method of test.....	98
5.3.3.5.2	Test requirements	98
5.3.3.6	Transmitter spurious emissions for UE category 0	99
5.3.3.6.1	Method of test.....	99
5.3.3.6.2	Test requirements	99
5.3.3.7	Transmitter spurious emissions for UE category M1	99
5.3.3.7.1	Method of test.....	99
5.3.3.7.2	Test requirements	100
5.3.4	Transmitter Minimum Output Power.....	100
5.3.4.1	Transmitter minimum output power for Single Carrier.....	100
5.3.4.1.1	Method of test.....	100
5.3.4.1.2	Test requirements	101
5.3.4.2	Transmitter minimum output power for intra-band contiguous Carrier Aggregation (DL CA and UL CA)	101
5.3.4.2.1	Method of test.....	101
5.3.4.2.2	Test requirements	102
5.3.4.2A	Transmitter minimum output power for inter-band Carrier Aggregation (DL CA and UL CA).....	102

5.3.4.2A.1	Method of test.....	102
5.3.4.2A.2	Test requirements	103
5.3.4.3	Transmitter minimum output power for UL-MIMO	103
5.3.4.3.1	Method of test.....	103
5.3.4.3.2	Test requirements	104
5.3.4.4	Transmitter minimum output power for category NB1.....	104
5.3.4.4.1	Method of test.....	104
5.3.4.4.2	Test requirements	104
5.3.4.5	Transmitter minimum output power for UE category 0	105
5.3.4.5.1	Method of test.....	105
5.3.4.5.2	Test requirements	105
5.3.4.6	Transmitter minimum output power for UE category M1	105
5.3.4.6.1	Method of test.....	105
5.3.4.6.2	Test requirements	106
5.3.5	Receiver Adjacent Channel Selectivity (ACS)	106
5.3.5.1	Receiver Adjacent Channel Selectivity (ACS) for Single Carrier	106
5.3.5.1.1	Method of test.....	106
5.3.5.1.2	Test requirements	107
5.3.5.2	Receiver Adjacent Channel Selectivity (ACS) for Carrier Aggregation in DL-only bands.....	107
5.3.5.2.1	Method of test.....	107
5.3.5.2.2	Test requirements	108
5.3.5.3	Receiver Adjacent Channel Selectivity (ACS) for category NB1.....	108
5.3.5.3.1	Method of test.....	108
5.3.5.3.2	Test requirements	110
5.3.5.4	Receiver Adjacent Channel Selectivity (ACS) for UE category 0	110
5.3.5.4.1	Method of test.....	110
5.3.5.4.2	Test requirements	110
5.3.5.5	Receiver Adjacent Channel Selectivity (ACS) for UE category M1	110
5.3.5.5.1	Method of test.....	110
5.3.5.5.2	Test requirements	111
5.3.6	Receiver Blocking Characteristics	112
5.3.6.1	Receiver Blocking Characteristics for Single Carrier	112
5.3.6.1.1	Method of test.....	112
5.3.6.1.2	Test requirements	113
5.3.6.2	Receiver Blocking Characteristics for Carrier Aggregation in DL-only bands.....	114
5.3.6.2.1	Method of test.....	114
5.3.6.2.2	Test requirements	116
5.3.6.3	Receiver Blocking Characteristics for category NB1	116
5.3.6.3.1	Method of test.....	116
5.3.6.3.2	Test requirements	117
5.3.6.4	Receiver Blocking Characteristics for UE category 0.....	117
5.3.6.4.1	Method of test.....	117
5.3.6.4.2	Test requirements	118
5.3.6.5	Receiver Blocking Characteristics for UE category M1	118
5.3.6.5.1	Method of test.....	118
5.3.6.5.2	Test requirements	120
5.3.7	Receiver Spurious Response.....	120
5.3.7.1	Receiver Spurious Response for Single Carrier	120
5.3.7.1.1	Method of test.....	120
5.3.7.1.2	Test requirements	120
5.3.7.2	Receiver Spurious Response for Carrier Aggregation in DL-only bands	120
5.3.7.2.1	Method of test.....	120
5.3.7.2.2	Test requirements	121
5.3.7.3	Receiver Spurious Response for category NB1	121
5.3.7.3.1	Method of test.....	121
5.3.7.3.2	Test requirements	121
5.3.7.4	Receiver Spurious Response for UE category 0.....	122
5.3.7.4.1	Method of test.....	122
5.3.7.4.2	Test requirements	122
5.3.7.5	Receiver Spurious Response for UE category M1	122
5.3.7.5.1	Method of test.....	122
5.3.7.5.2	Test requirements	122

5.3.8	Receiver Intermodulation Characteristics	123
5.3.8.1	Receiver Intermodulation Characteristics for Single Carrier	123
5.3.8.1.1	Method of test.....	123
5.3.8.1.2	Test requirements	123
5.3.8.2	Receiver Intermodulation Characteristics for Carrier Aggregation in DL-only bands.....	124
5.3.8.2.1	Method of test.....	124
5.3.8.2.2	Test requirements	125
5.3.8.3	Receiver Intermodulation Characteristics for category NB1	125
5.3.8.3.1	Test requirements	125
5.3.8.3.2	Test requirements	125
5.3.8.4	Receiver Intermodulation Characteristics for UE category 0.....	126
5.3.8.4.1	Method of test.....	126
5.3.8.4.2	Test requirements	126
5.3.8.5	Receiver Intermodulation Characteristics for UE category M1	126
5.3.8.5.1	Method of test.....	126
5.3.8.5.2	Test requirements	127
5.3.9	Receiver Spurious Emissions.....	127
5.3.9.1	Receiver Spurious Emissions for Single Carrier	127
5.3.9.1.1	Method of test.....	127
5.3.9.1.2	Test requirements	128
5.3.9.2	Receiver Spurious Emissions in DL-only bands	128
5.3.9.2.1	Method of test.....	128
5.3.9.2.2	Test requirements	129
5.3.9.3	Receiver Spurious Emissions for UE category 0	129
5.3.9.3.1	Method of test.....	129
5.3.9.3.2	Test requirements	129
5.3.9.4	Receiver Spurious Emissions for UE category M1	129
5.3.9.4.1	Method of test.....	129
5.3.9.4.2	Test requirements	130
5.3.9.5	Receiver Spurious Emissions for UE category NB1	130
5.3.9.5.1	Method of test.....	130
5.3.9.5.2	Test requirements	130
5.3.10	Transmitter Adjacent Channel Leakage Power Ratio	130
5.3.10.1	Transmitter adjacent channel leakage power ratio for Single Carrier	130
5.3.10.1.1	Method of test.....	130
5.3.10.1.2	Test requirements	131
5.3.10.2	Transmitter adjacent channel leakage power ratio for intra-band contiguous Carrier Aggregation (DL CA and UL CA).....	132
5.3.10.2.1	Method of test.....	132
5.3.10.2.2	Test requirements	133
5.3.10.2A	Transmitter adjacent channel leakage power ratio for inter-band Carrier Aggregation (DL CA and UL CA).....	133
5.3.10.2A.1	Method of test.....	133
5.3.10.2A.2	Test requirements	134
5.3.10.3	Transmitter adjacent channel leakage power ratio for UL-MIMO.....	134
5.3.10.3.1	Method of test.....	134
5.3.10.3.2	Test requirements	135
5.3.10.4	Transmitter adjacent channel leakage power ratio for Multi-Cluster PUSCH within a component carrier	135
5.3.10.4.1	Method of test.....	135
5.3.10.4.2	Test requirements	136
5.3.10.5	Transmitter adjacent channel leakage power ratio for category NB1	136
5.3.10.5.1	Method of test.....	136
5.3.10.5.2	Test requirements	137
5.3.10.6	Transmitter adjacent channel leakage power ratio for UE category 0.....	137
5.3.10.6.1	Method of test.....	137
5.3.10.6.2	Test requirements	138
5.3.10.7	Transmitter adjacent channel leakage power ratio for UE category M1	138
5.3.10.7.1	Method of test.....	138
5.3.10.7.2	Test requirements	139
5.3.11	Receiver Reference Sensitivity Level	139
5.3.11.1	Receiver Reference Sensitivity Level for Single Carrier	139

5.3.11.1.1	Method of test.....	139
5.3.11.1.2	Test requirements	139
5.3.11.2	Receiver Reference Sensitivity Level for Carrier Aggregation in DL-only bands.....	140
5.3.11.2.1	Method of test.....	140
5.3.11.2.2	Test requirements	141
5.3.11.3	Receiver Reference Sensitivity Level for category NB1.....	141
5.3.11.3.1	Method of test.....	141
5.3.11.3.2	Test requirements	141
5.3.11.4	Receiver Reference Sensitivity Level for UE category 0.....	141
5.3.11.4.1	Method of test.....	141
5.3.11.4.2	Test requirements	142
5.3.11.5	Receiver Reference Sensitivity Level for UE category M1	142
5.3.11.5.1	Method of test.....	142
5.3.11.5.2	Test requirements	143
5.3.12	Receiver Total Radiated Sensitivity (TRS).....	143
5.3.12.1	Method of test	143
5.3.12.1.1	Initial conditions	143
5.3.12.1.2	Procedure.....	143
5.3.12.1.3	Procedure, reverberation chamber method	143
5.3.12.2	Test requirements	143
5.3.13	Total Radiated Power (TRP).....	143
5.3.13.1	Method of test	143
5.3.13.1.1	Initial conditions	143
5.3.13.1.2	Procedure.....	143
5.3.13.1.3	Procedure, reverberation chamber method.....	144
5.3.13.2	Test requirements.....	144
Annex A (informative):	Relationship between the present document and the essential requirements of Directive 2014/53/EU	145
Annex B (normative):	Environmental profile	147
B.1	General	147
B.1.1	Introduction	147
B.1.2	Temperature	147
B.1.3	Voltage	147
B.1.4	Test environment.....	148
Annex C (informative):	Maximum Measurement Uncertainty.....	149
Annex D (informative):	Bibliography.....	150
Annex E (informative):	Change history	151
History		152

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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.

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.

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] and [i.15]
	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	

- 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.16], 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 2 500 MHz and 2 570 MHz ($F_{DL_low} = 2\,500\text{ MHz}$ and $F_{DL_high} = 2\,570\text{ MHz}$).

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].

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".