

**COMMUNICATIONS
ALLIANCE LTD**



PUBLIC COMMENT DRAFT

DRAFT AUSTRALIAN STANDARD

DR AS/CA S042.4:2021

Requirements for connection to an air interface
of a Telecommunications Network—
Part 4: IMT-2000 and IMT-Advanced Customer
Equipment

Issued: 30 November 2021

Comments close: 11 February 2022



Draft Australian Standard – Requirements for connection to an air interface of a Telecommunications Network— Part 4: IMT-2000 and IMT-Advanced Customer Equipment

This Standard was issued in draft form for public comment as DR AS/CA S042.4:2021

First published as AS/CA S042.4:2010

Second edition as AS/CA S042.4:2015, published on 26 February 2015

Third edition as AS/CA S042.4:2018, published on 12 April 2018

Communications Alliance Ltd (formerly Australian Communications Industry Forum Ltd) was formed in 2006 to provide a unified voice for the Australian communications industry and to lead it into the next generation of converging networks, technologies and services.

Disclaimers

1. Notwithstanding anything contained in this Standard:
 - (a) Communications Alliance disclaims responsibility (including where Communications Alliance or any of its officers, employees, agents or contractors has been negligent) for any direct or indirect loss, damage, claim, or liability any person may incur as a result of any:
 - (i) reliance on or compliance with this Standard;
 - (ii) inaccuracy or inappropriateness of this Standard; or
 - (iii) inconsistency of this Standard with any law; and
 - (b) Communications Alliance disclaims responsibility (including where Communications Alliance or any of its officers, employees, agents or contractors has been negligent) for ensuring compliance by any person with this Industry.
2. The above disclaimers will not apply to the extent they are inconsistent with any relevant legislation.

Copyright

© Communications Alliance Ltd 2021

This document is copyright and must not be used except as permitted below or under the Copyright Act 1968. You may reproduce and publish this document in whole or in part for your or your organisation's own personal or internal compliance, educational or non-commercial purposes. You must not alter or amend this document in any way. You must not reproduce or publish this document for commercial gain without the prior written consent of Communications Alliance. Organisations wishing to reproduce or publish this document for commercial gain (i.e. for distribution to subscribers to an information service) should apply to Communications Alliance by contacting the Communications Alliance Commercial Manager at info@commsalliance.com.au.

Guidance for public comment on DR AS/CA S042.4:2021

This draft Standard is the outcome of the revision of AS/CA S042.4:2018 undertaken by the Communications Alliance WC94 : **WC94 : IMT-2020 Customer Equipment** Working Committee. The two-month public comment phase is a part of the requirements of Communications Alliance Operating Procedures for the development or revision of an AS/CA Standard.

The reader is invited to comment on the requirements for customer equipment scoped within this Standard and on the following proposed recommendations. All submissions received will be made publicly available on the Communications Alliance website unless the submitter requests otherwise.

Please return comments by 11 February 2022 to:

Mike Johns

Project Manager, Communications Alliance

Mail: PO Box 444, Milsons Point NSW 1565

Fax: 02 9954 6136 Email: m.johns@commsalliance.com.au

This draft is available from www.commsalliance.com.au for download.

Background

The AS/CA S042 *Requirements for connection to an air interface of a Telecommunications Network* Standard specifies the general requirements and test methods for CE for use in connection with a PMTS or a Satellite Service in order to meet the regulatory arrangements for such equipment in Australia.

Changes to Part 1: General

With the proposed introduction of the new Part 5 specifying the requirements for IMT-2020 Customer Equipment, the references, acronyms, definitions and requirements of Part 1 have also been updated to maintain alignment.

Specifically, the emergency call service requirements have been updated with device identifiers used by 5G CE. This includes the introduction of the new IMEISV identifier which augments the role of the IMEI identifier by including the software version of the customer equipment. It should be noted that at the time of the anticipated publication of the revised AS/CA S042 Standard, the Australian mobile network operators will not be able to support the use of the IMEISV for law enforcement, AMTA's Mobile Device Security program that includes an IMEI blocking capability and ECP purposes.

Other changes include the updating of the reference to C536 with regards to the programming of the Identity Module ECC field and also reproducing all IMEI and PKC security requirements into Part 1 of the Standard.

Changes to Part 4: IMT-2000 and IMT-Advanced customer equipment

With the proposed introduction of the new Part 5 specifying the requirements for IMT-2020 Customer Equipment, the references and requirements of Part 4 have also been updated to maintain alignment.

The Receiver Total Radiated Sensitivity (TRS) and Total Radiated Power (TRP) test cases have been excluded from the compliance conditions as radiated antenna performance requirements are outside the scope of this Standard.

The Standard that provided the requirements for Cat M1 and NarrowBand IoT has been updated from ETSI TS 136 101 to ETSI EN Harmonised Standard and FCC Part 22.

Other changes include relocating all IMEI and PKC security requirements into Part 1 of the Standard.

The new Part 5 for IMT-2020 customer equipment

The AS/CA S042 Standard is being updated with a new proposed Part 5: **IMT-2020 Customer Equipment** providing the technical conditions and requirements for IMT CE that is designed or intended for use in connection with an IMT-2020 public mobile telecommunications service (PMTS).

The new requirements apply to the following 5G NR technologies:

- 5G New Radio
- 5G New Radio and E-UTRA (LTE)

The requirements reflect 3GPP Release 15.

The spectrum bands reflect those identified to be relevant for Australia for use by the mobile carriers.

When EN 301 908-25 **IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 25: New Radio (NR) User Equipment (UE) Part 25** is published, anticipated to be late 2022, the compliance arrangements in AS/CA S042.5 Standard will be updated to pick up the new ETSI Harmonised Standard.

Compliance arrangements

On publication, this Standard becomes enforceable under the ACMA *Telecommunications (Labelling Notice for Customer Equipment and Customer Cabling) Instrument 2015* (TLN). Information on the ACMA TLN is available from the ACMA *Find the right labelling notice* at <https://www.acma.gov.au/find-right-labelling-notice>.

The intention is to publish the revised AS/CA S042 Parts 1 and 4 and the new AS/CA S042 Part 5 on the same date in Q2 2022. The three Parts will then be forwarded to the ACMA with the recommendation for them to be *made* under the *Telecommunications Act 1997*. The ACMA will then undertake a regulatory consultation process for a minimum of 60 days, to fulfil their regulatory obligations prior to a decision to *make* these three Parts of AS/CA S042. The intention is to have all three Parts to become applicable Standards under the TLN on the same date.

FOREWORD

General

This Standard was prepared by Communications Alliance and most recently revised by the WC94 : *IMT-2020 Customer Equipment* Working Committee. It is one of a series of Telecommunication Standards developed under the Memorandum of Understanding between the Australian Communications Authority (ACA) and the Australian Communications Industry Forum (ACIF).

Note: On 1 July 2005 the ACA became the Australian Communications and Media Authority (ACMA) and the Memorandum of Understanding continues in effect as if the reference to the ACA were a reference to ACMA.

Communications Alliance was formed in 2006 and continues the functions previously fulfilled by ACIF.

This Standard is a revision of AS/CA S042.4: 2018 *Requirements for connection to an air interface of a Telecommunications Network— Part 4: IMT Customer Equipment*.

This Standard is the result of a consensus among representatives on the Communications Alliance Working Committee to produce it as an Australian Standard.

The requirements in this Standard are consistent with the aims of s376 of the *Telecommunications Act 1997*. Specifically these aims are—

- (a) protecting the integrity of a telecommunications network or facility;
- (b) protecting the health and safety of persons;
- (c) ensuring access to an Emergency Call Service (ECS); and
- (d) ensuring interoperability with a standard telephone service (STS).

It should be noted that some Customer Equipment (CE) may also need to comply with requirements in other Standards or other Parts of this Standard.

The Standard should be read in conjunction with *AS/CA S042.1: General*.

Applicable electrical safety Standards, EMC, Radiocommunications and EMR Standards may apply under Commonwealth or State/Territory laws, or both.

Intellectual property rights

Equipment which is manufactured to comply with this Standard may require the use of technology which is protected by patent rights in Australia. Questions about the availability of such technology, under licence or otherwise, should be directed to the patent holder or Australian licensee (if known) or through enquiry at IP Australia which incorporates the Patent, Designs and Trade Marks and Offices. Further information can be found at www.ipaustralia.gov.au.

Standards revision

Australian Standards (AS/ACIF and AS/CA Standards) developed by Communications Alliance, are updated according to the needs of the industry, by amendments or revision. Users of these Standards should make sure that they

possess the latest amendments or editions. Representations concerning the need for a change to this AS/CA Standard should be addressed to—

The Project Manager
Customer Equipment and Cable Reference Panel
Communications Alliance
PO Box 444
Milsons Point NSW 1565

Regulatory notice

The 2022 version of AS/CA S042.4 is mandated by the ACMA *Telecommunications (Mobile Equipment Air Interface) Technical Standard 2018* (the 2018 ACMA Standard) and comes into force on the date it is published.

In the instance that the 2022 version of AS/CA S042.4 is mandated by the ACMA, the transition period for AS/CA S042.1:2020 will be 12 months commencing on the day the 2018 ACMA Standard is replaced.

Details on current compliance arrangements can be obtained from the ACMA website at <http://www.acma.gov.au> or by contacting the ACMA below at:

Australian Communications and Media Authority
PO Box 13112
Law Courts PO
Melbourne VIC 8010
Australia

Telephone: +61 3 9963 6800

Facsimile: +61 3 9963 6899

TTY: +61 3 9963 6948

INTRODUCTION

This introduction for the AS/CA S042.4 **Requirements for connection to an air interface of a Telecommunications Network— Part 4: IMT-2000 and IMT-Advanced Customer Equipment** Standard is not an authoritative section of this Standard and is only provided as guidance for the user of the Standard to outline its objectives, and the factors that have been taken into account in its development and to list the principle differences between the new and the previous edition.

The reader is directed to the clauses of this Standard for the specific requirements and to the ACMA for the applicable telecommunications labelling and compliance arrangements.

Note: Further information on the telecommunications labelling and compliance arrangements can be found in *the Telecommunications (Labelling Notice for Customer Equipment and Customer Cabling) Instrument 2015* (the TLN) can be obtained from the ACMA website at www.acma.gov.au.

The objective of Part 4 is to provide the basic compliance requirements and associated test methods for IMT-2000 and IMT-Advanced CE in order to comply with the regulatory arrangements for such CE in Australia.

The objective of this revision is to align the IMT terminology with the introduction of the new AS/CA S042.5 Standard.

The principal differences between this edition of AS/CA S042.4 and the previous edition are—

- (a) updating the designation of IMT Customer Equipment to clarify that Part 4 specifies requirements for IMT-2000 and IMT-Advanced Customer Equipment;
- (b) relocating the IMEI and PKS security requirements to Part 1 of the Standard;
- (c) excluding the Receiver Total Radiated Sensitivity (TRS) and Total Radiated Power (TRP) test cases from the compliance conditions as radiated antenna performance requirements are outside the scope of this Standard;
- (d) updating the requirements for Cat M1 from ETSI TS 136 101 to ETSI EN and FCC Part 22; and
- (e) updating the requirements for NarrowBand IoT from ETSI TS 136 101 to ETSI EN and FCC Part 22.

TABLE OF CONTENTS

1	INTERPRETATIVE GUIDELINES	1
	1.1 Categories of requirements	1
	1.2 Compliance statements	1
	1.3 Definitions, expressions and terms	1
	1.4 Notes	1
	1.5 References	1
	1.6 Units and symbols	2
	1.7 Parts of Standards	2
2	SCOPE	3
3	REFERENCES	4
4	ABBREVIATIONS AND DEFINITIONS	8
	4.1 Abbreviations	8
	4.2 Definitions	8
	4.2.1 Carrier Aggregation	8
	4.2.2 Cat M1	8
	4.2.3 NB-IoT	8
	4.2.4 V2X	9
5	REQUIREMENTS	10
	5.1 UTRA FDD	10
	5.1.1 Applicability	10
	5.1.2 Core protocol specifications	10
	5.1.3 FCC UTRA Band 5	10
	5.1.4 RED UTRA Bands	11
	5.2 E-UTRA FDD and E-UTRA TDD	11
	5.2.1 Applicability	11
	5.2.2 Core Protocol Specifications	12
	5.2.3 Single carrier	12
	5.2.4 Carrier Aggregation	13
	5.2.5 Cellular Internet of Things	14
	5.2.6 V2X	16
	5.3 OFDMA TDD WMAN	17
	5.3.1 Applicability	17
	5.3.2 TDD Band Class 3 (2.5 GHz)	17
	5.3.3 TDD Band Class 5 (3.5 GHz)	18

6	TESTING	19
	6.1 Verification of compliance with requirements	19
PARTICIPANTS		20

TABLES

1	UTRA Band under FCC Rules	11
2	UTRA Bands under ETSI	11
3	E-UTRA Bands under ETSI	12
4	E-UTRA Band under FCC Rules	13
5	Bands used for Carrier Aggregation	13
6	Cat M1 Bands	15
7	NB-IoT Bands	16
8	V2X Bands	17
9	OFDMA TDD WMAN Band Class 3	17
10	OFDMA TDD WMAN Band Class 5	18

1 INTERPRETATIVE GUIDELINES

1.1 Categories of requirements

This Standard contains mandatory requirements as well as provisions that are recommendatory only. Mandatory requirements are designated by the words '**shall**' or '**shall not**'. All other provisions are voluntary.

1.2 Compliance statements

Compliance statements, in italics, suggest methodologies for demonstrating CE's compliance with the requirements.

1.3 Definitions, expressions and terms

If there is any conflict between the definitions used in this Standard and the definitions used in the *Telecommunications Act 1997*, the definitions in the Act take precedence.

1.4 Notes

Text denoted as 'Note' is for guidance in interpretation and is shown in smaller size type.

1.5 References

- (a) Applicable editions (or versions) of other mandatory documents referred to in this Standard are specified in Section 3: REFERENCES. The bibliography contains information about other publications referred to in this Standard e.g. publications only referred to in notes and informative appendices.
- (b) If a document refers to another document, the other document is a sub-referenced document.
- (c) Where the edition (or version) of the sub-referenced document is uniquely identified in the reference document, then that edition (or version) applies.
- (d) Where the edition (or version) of the sub-referenced document is not uniquely identified in the reference document, then the applicable edition (or version) is that which is current at the date the reference document is legislated under the applicable regulatory framework, or for a non- legislated document, the date upon which the document is published by the relevant standards organisation.
- (e) A number in square brackets '[]' refers to a document listed in Section 3: REFERENCES.

1.6 Units and symbols

In this Standard the International System (SI) of units and symbols is used in accordance with Australian Standard AS ISO 1000 [1].

1.7 Parts of Standards

CE scoped by this Standard is to comply with the applicable technology-specific Part(s) of this Standard.

2 SCOPE

- 2.1 This Standard applies to IMT-2000 and IMT-Advanced CE. It defines the technical conditions and requirements for IMT CE that is designed or intended for use in connection with an IMT-2000 and IMT-Advanced public mobile telecommunications service (PMTS) and is an addressable device.

Note: In the context of this scope, CE intended for connection to a service includes CE capable of connection to a service.

- 2.2 This Standard applies to IMT CE based upon the following IMT-2000 and IMT-Advanced technologies:

- (a) UTRA FDD.
- (b) E-UTRA FDD and E-UTRA TDD.
- (c) OFDMA TDD WMAN.

- 2.3 CE is not excluded from the scope of this Standard by reason only that it is capable of performing functions additional to those described in this Standard.

3 REFERENCES

For dated references, only the edition cited applies. However, parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below.

For undated references, the latest edition of the referenced document (including any amendments) applies. For ETSI Standards that are issued in Releases, the latest version of the relevant Release applies.

	Publication	Title
Australian Standards		
[1]	AS ISO 1000 -1998	The international System of Unit (SI) and its application.
EC Publications		
[2]	Radio Equipment Directive (RED)	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
ETSI publications		
[3]	ETSI TS 122 016 V15.0.0 (2018-07)	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; International Mobile station Equipment Identities (IMEI) (3GPP TS 22.016)
[4]	ETSI TS 122 185	LTE; Service Requirements for V2X services
[5]	ETSI TS 123 122	Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Non-Access-Stratum (NAS) functions related to Mobile Station (MS) in idle mode (3GPP TS 23.122)
[6]	ETSI TS 124 008	Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Mobile radio interface Layer 3 specification; Core network protocols; Stage 3 (3GPP TS 24.008)
[7]	ETSI TS 125 304	Universal Mobile Telecommunications System (UMTS); User Equipment (UE) procedures in idle mode and procedures for

	Publication	Title
		cell reselection in connected mode (3GPP TS 25.304)
[8]	ETSI TS 125 321	Universal Mobile Telecommunications System (UMTS); Medium Access Control (MAC) protocol specification (3GPP TS 25.321)
[9]	ETSI TS 125 331	Universal Mobile Telecommunications System (UMTS); Radio Resource Control (RRC); Protocol specification (3GPP TS 25.331)
[10]	ETSI TS 134 123-1	Universal Mobile Telecommunications System (UMTS); User Equipment (UE) conformance specification; Part 1: Protocol conformance specification (3GPP TS 34.123-1)
[11]	ETSI TS 134 123-2	Universal Mobile Telecommunications System (UMTS); User Equipment (UE) conformance specification; Part 2: Implementation conformance statement (ICS) proforma specification (3GPP TS 34.123-2)
[12]	ETSI TS 134 123-3	Universal Mobile Telecommunications System (UMTS); User Equipment (UE) conformance specification; Part 3: Abstract test suite (ATS) (3GPP TS 34.123-3)
[13]	ETSI TS 136 101	LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception (3GPP TS 36.101)
[14]	ETSI TS 136 300	LTE; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2
[15]	ETSI TS 136 321	LTE Evolved Universal Terrestrial Radio Access (E-UTRA) Medium Access Control (MAC) Protocol Specification (3GPP TS 36.321)
[16]	ETSI TS 136 322	LTE Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Link Control (RLC) Protocol Specification (3GPP TS 36.322)
[17]	ETSI TS 136 323	LTE Evolved Universal Terrestrial Radio Access (E-UTRA) Packet Data Convergence Protocol (PDCP) Specification (3GPP TS 36.323)

	Publication	Title
[18]	ETSI TS 136 331	LTE Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Resource Control (RCC) Protocol Specification (3GPP TS 36.331)
[19]	ETSI TS 136 521-1	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)
[20]	ETSI TS 136 523-1	LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part1 Protocol conformance specification (3GPP TS 36.523-1)
[21]	ETSI TS 136 523-2	LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part2: Implementation Conformance Statement (ICS) proforma specification (3GPP TS 36.523-2)
[22]	ETSI TS 136 523-3	LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); and Evolved Packet Core (EPC); User Equipment (UE) conformance specification; Part3: Test Suites (3GPP TS 36.523-3)
[23]	ETSI EN 301 908-1	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 1: Introduction and common requirements
[24]	ETSI EN 301 908-2	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: CDMA Direct Spread (UTRA FDD) User Equipment (UE)
[25]	ETSI EN 301 908-13	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE)
[26]	ETSI EN 301 908-19	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 19: OFDMA TDD WMAN (Mobile WiMAX™) TDD User Equipment (UE)

	Publication	Title
	FCC Requirements	
[27]	FCC Part 22 Rules	Public Mobile Services (URL: http://www.access.gpo.gov/nara/cfr/waisidx_05/47cfr22_05.html)
	ITU-T Recommendations	
[28]	X.509 (10/16)	Information technology - Open Systems Interconnection - The Directory: Public-key and attribute certificate frameworks

4 ABBREVIATIONS AND DEFINITIONS

For the purposes of this Standard, the following abbreviations, acronyms and definitions and those of Part 1 apply.

4.1 Abbreviations

Cat M1	Category M1
EC	European Commission
EN	European Norm
FCC	Federal Communications Commission
ID	Identifier
IoT	Internet of Things
LAA	License Assisted Access
LPWA	Low-Power Wide-Area
NB	Notified Body
NB-IoT	NarrowBand Internet of Things
R&TTE	Radiocommunications & Telecommunications Terminal Equipment
RED	Radio Equipment Directive
TCB	Telecommunication Certified Body
TRP	Total Radiated Power
TRS	Total Radiated Sensitivity
V2X	Vehicle-to-Everything

4.2 Definitions

4.2.1 Carrier Aggregation

Carrier Aggregation is the aggregation of two or more LTE component carriers in the downlink, uplink or both, in order to support wider transmission bandwidths. FDD and TDD LTE component carriers in both licensed and unlicensed spectrum can be part of any Carrier Aggregation combination.

4.2.2 Cat M1

LTE Cat M1 is a LPWA technology which supports IoT through lower device complexity which provides extended coverage and long battery life. LTE Cat M1 uses a 1.4 MHz bandwidth and has a peak downlink and uplink data rate of 1 Mbps. Refer to ETSI 136 300 [14]

4.2.3 NB-IoT

NB-IoT is a cellular LPWA technology that significantly improves the power consumption of devices, system capacity and spectrum efficiency, especially in deep coverage.

NB-IoT uses a 200 kHz bandwidth and has a peak downlink and uplink data rate of 250 kbps. Refer to ETSI TS 136 300 [14]

4.2.4 V2X

Vehicle-to-everything describes a set of technologies that allow vehicles to communicate with each other and other smart transport solutions via existing cellular networks. Refer to ETSI 122 185 [4]

5 REQUIREMENTS

5.1 UTRA FDD

5.1.1 Applicability

The requirements in Clause 5.1 are applicable to CE based upon UTRA FDD technologies.

5.1.2 IMEI security

CE **shall** comply with IMEI security requirements of ETSI TS 122 016 [3].

Note: This requirement has been reproduced from Part 1 to avoid a potential compliance gap during the transition period of the applicable Standards. It will be removed from Part 4 during the next revision of this Part.

Compliance with Clause 5.1.2 should be demonstrated by way of a manufacturer's DoC.

5.1.3 Core protocol specifications

CE **shall** comply with the applicable mandatory requirements of the following ETSI Core Specifications:

(a) ETSI TS 123 122 [5]

(b) ETSI TS 124 008 [6]

(c) ETSI TS 125 304 [7]

(d) ETSI TS 125 321 [8]

(e) ETSI TS 125 331 [9]

Note: The applicable mandatory requirements mean the relevant mandatory requirements in the ETSI specifications which have been implemented in the CE and commercially deployed by the manufacturer.

Compliance with Clause 5.1.3 should be demonstrated by way of a manufacturer's DoC for mandatory requirements.

Note: Formal conformance test cases covering mandatory requirements in ETSI Core Specifications for UTRA FDD are defined in ETSI TS 134 123 [10] [11] [12]. Test vendors integrate UTRA FDD reference test suite into their test platform and validate using reference UE before commercial release.

5.1.4 FCC UTRA Band 5

CE used in the band listed in Table 1 **shall** comply with the requirements of FCC Part 22 Rules [27] for RF compatibility, network integrity and interoperability with the STS.

TABLE 1
UTRA Band under FCC Rules

Band No.	Band frequency
FDD Band 5	850 MHz

Compliance with Clause 5.1.4 should be demonstrated by way of a—

- (a) test report;
- (b) FCC/TCB Grant of Equipment Authorization, based on FCC ID to FCC requirements; or
- (c) manufacturer's DoC.

5.1.5 RED UTRA Bands

CE used in the bands listed in Table 2 **shall** comply with the requirements of ETSI EN 301 908-1 [13] for RF compatibility, network integrity and interoperability with the STS, including the requirements incorporated by reference and found in section 1 of ETSI EN 301 908-2 [24].

TABLE 2
UTRA Bands under ETSI

Band No.	Band frequency
FDD Band 1	2.1 GHz
FDD Band 8	900 MHz

Compliance with Clause 5.1.5 should be demonstrated by way of a—

- (a) test report, excluding Receiver Total Radiated Sensitivity (TRS) and Total Radiated Power (TRP) test cases);
- (b) EU-type examination by a Notified Body (NB), based on conformity assessment procedures described in the RED, Annex III [2]; or
- (c) manufacturer's DoC, based on conformity assessment procedures described in the RED.

Note: Radiated antenna performance requirements are outside the scope of this Standard.

5.2 E-UTRA FDD and E-UTRA TDD

5.2.1 Applicability

The requirements in Clause 5.2 are applicable to CE based upon E-UTRA FDD and E-UTRA TDD technologies.

5.2.2 IMEI security

CE **shall** comply with IMEI security requirements of ETSI TS 122 016 [3].

Note: This requirement has been reproduced from Part 1 to avoid a potential compliance gap during the transition period of the applicable Standards. It will be removed from Part 4 during the next revision of this Part.

Compliance with Clause 5.2.2 should be by way of a manufacturer's DoC.

5.2.3 Core Protocol Specifications

CE **shall** comply with the applicable mandatory requirement of the following ETSI Specifications:

- (a) ETSI TS 136 321 [15]
- (b) ETSI TS 136 322 [16]
- (c) ETSI TS 136 323 [17]
- (d) ETSI TS 136 331 [18]

Note: The applicable mandatory requirements mean the relevant mandatory requirements in the ETSI specifications which have been implemented in the CE and commercially deployed by the manufacturer.

Compliance with Clause 5.2.3 should be demonstrated by way of a manufacturer's DoC for the applicable mandatory requirements.

Note: *Formal conformance test cases covering mandatory requirements are defined in ETSI TS 136 523-1 [20], ETSI TS 136 523-2 [21] and ETSI TS 136 523-3 [22].*

5.2.4 Single carrier

5.2.4.1 RED E-UTRA bands

CE used in the bands listed in Table 3 **shall** comply with the requirements of ETSI EN 301 908-1 [23] and ETSI EN 301 908-13 [25] for RF compatibility, network integrity and interoperability with the STS excluding those requirements relating to antenna performance.

TABLE 3
E-UTRA Bands under ETSI

Band No.	Band frequency
FDD Band 1	2.1 GHz
FDD Band 3	1.8 GHz
FDD Band 7	2.6 GHz
FDD Band 8	900 MHz
FDD Band 28	700 MHz

TDD Band 38	2.6 GHz
TDD Band 40	2.3 GHz
TDD Band 42	3.5 GHz

Compliance with Clause 5.2.4.1 should be demonstrated by way of a—

- (a) test report, excluding Receiver Total Radiated Sensitivity (TRS) and Total Radiated Power (TRP) test cases);
- (b) EU-Type Examination by a Notified Body (NB), based on conformity assessment procedures described in the RED, Annex III [2]; or
- (c) manufacturer's DoC, based on conformity assessment procedures described in the RED, Annex III [2].

Note: Radiated antenna performance requirements are outside the scope of this Standard.

5.2.4.2 FCC E-UTRA Band 5

CE used in in the band listed in Table 4 **shall** comply with the requirements of FCC Part 22 Rules [27] for RF compatibility, network integrity and interoperability with the STS.

TABLE 4
E-UTRA Band under FCC Rules

Band No.	Band frequency
FDD Band 5	850 MHz

Compliance with Clause 5.2.4.2 should be demonstrated by way of a—

- (a) test report;
- (b) FCC/TCB Grant of Equipment Authorization, based on FCC ID to FCC requirements; or
- (c) manufacturer's DoC.

5.2.5 Carrier Aggregation

5.2.5.1 RED Carrier Aggregation combinations

CE used in any combination of bands listed in Table 5 for Carrier Aggregation **shall** comply with the requirements of ETSI EN 301 908-1 [23] and ETSI EN 301 908-13 [25] for RF compatibility, network integrity and interoperability with the STS.

TABLE 5
Bands used for Carrier Aggregation

Band No.	Band frequency
----------	----------------

FDD Band 1	2.1 GHz
FDD Band 3	1.8 GHz
FDD Band 5	850 MHz
FDD Band 7	2.6 GHz
FDD Band 8	900 MHz
FDD Band 28	700 MHz
TDD Band 38	2.6 GHz
TDD Band 40	2.3 GHz
TDD Band 42	3.5 GHz
TDD Band 46	5 GHz

Compliance with Clause 5.2.5.1 should be demonstrated by way of a—

- (a) test report;
- (b) EU-Type Examination by a Notified Body (NB), based on conformity assessment procedures described in the RED, Annex III [2]; or
- (c) manufacturer's DoC, based on conformity assessment procedures described in the RED, Annex III [2].

Note 1: Conformance test cases covering mandatory transmitter and receiver requirements for Carrier Aggregation combinations are defined in ETSI TS 136 521-1 [19].

Note 2: Compliance options (a) and (b) may contain E-UTRA bands listed in Table 3 only. Subject to the CE Carrier Aggregation configurations, further evidence (DoC) may be required.

5.2.5.2 Other Carrier Aggregation combinations

For Carrier Aggregation combinations that are not defined in ETSI EN 301 908-13 [25], CE used in any combination of bands listed in Table 5 for Carrier Aggregation **shall** comply with the mandatory transmitter and receiver requirements for Carrier Aggregation of Clauses 6 and 7 of ETSI 136 101 [13] for RF compatibility, network integrity and interoperability with the STS.

Compliance with Clause 5.2.5.2 should be demonstrated by way of a manufacturer's DoC against the mandatory transmitter and receiver requirements for Carrier Aggregation of ETSI TS 136 101 [13] which are designated by the words 'shall' or 'shall not'.

5.2.6 Cellular Internet of Things

5.2.6.1 Cat M1

5.2.6.1.1 RED E-UTRA Bands

CE used in the bands listed in Table 6 for Cat M1 **shall** comply with the requirements of ETSI EN 301 908-1 [23] and ETSI EN 301 908-13 [25] for RF compatibility, network integrity and interoperability with the STS.

TABLE 6
Cat M1 E-UTRA Bands under ETSI

Band No.	Band frequency
FDD Band 1	2.1 GHz
FDD Band 3	1.8 GHz
FDD Band 7	2.6 GHz
FDD Band 8	900 MHz
FDD Band 28	700 MHz
TDD Band 40	2.3 GHz

Compliance with Clause 5.2.6.1.1 should be demonstrated by way of a—

- (a) test report;
- (b) EU-Type Examination by a Notified Body (NB), based on conformity assessment procedures described in the RED, Annex III [2]; or
- (c) manufacturer's DoC based on conformity assessment procedures described in the RED, Annex III [2].

5.2.6.1.2 FCC E-UTRA Band 5

CE used in in the band listed in Table 7 for Cat M1 **shall** comply with the requirements of FCC Part 22 Rules [27] for RF compatibility, network integrity and interoperability with the STS.

TABLE 7
Cat M1 E-UTRA Band under FCC Rules

Band No.	Band frequency
FDD Band 5	850 MHz

Compliance with Clause 5.2.6.1.2 should be demonstrated by way of a—

- (a) test report;
- (b) FCC/TCB Grant of Equipment Authorization, based on FCC ID to FCC requirements; or
- (c) manufacturer's DoC.

5.2.6.2 NarrowBand IoT

5.2.6.2.1 RED E-UTRA Bands

CE used in the bands listed in Table 8 for NB IoT **shall** comply with the requirements of ETSI EN 301 908-1 [23] and ETSI EN 301 908-13 [25] for RF compatibility and network integrity.

TABLE 8
NB-IoT E-UTRA Bands under ETSI

Band No.	Band frequency
FDD Band 1	2.1 GHz
FDD Band 3	1.8 GHz
FDD Band 8	900 MHz
FDD Band 28	700 MHz

Compliance with Clause 5.2.6.2.1 should be demonstrated by way of a—

- (a) test report;
- (b) EU-Type Examination by a Notified Body (NB), based on conformity assessment procedures described in the RED, Annex III [2]; or
- (c) manufacturer's DoC based on conformity assessment procedures described in the RED, Annex III [2].

5.2.6.2.2 FCC E-UTRA Band 5

CE used in in the band listed in Table 9 for NB IoT **shall** comply with the requirements of FCC Part 22 Rules [27] for RF compatibility, network integrity and interoperability with the STS.

TABLE 9
NB-IoT E-UTRA Band under FCC Rules

Band No.	Band frequency
FDD Band 5	850 MHz

Compliance with Clause 5.2.6.2.2 should be demonstrated by way of a—

- (a) test report;
- (b) FCC/TCB Grant of Equipment Authorization, based on FCC ID to FCC requirements; or
- (c) manufacturer's DoC.

5.2.7 V2X

CE used in the bands listed in Table 10 for V2X **shall** comply with the mandatory transmitter and receiver requirements for V2X of Clauses 6 and 7 of ETSI 136 101 [13] for RF compatibility and network integrity.

Compliance with Clause 5.2.7 should be demonstrated by way of a—

- (a) test report; or
- (b) manufacturer's DoC against the mandatory transmitter and receiver requirements for V2X of ETSI TS 136 101 [13] which are designated by the words 'shall' or 'shall not'.

Note 1: Formal conformance test cases covering mandatory transmitter and receiver requirements for V2X are defined in ETSI TS 136 521-1 [19].

TABLE 10
V2X Bands

Band No.	Band frequency
FDD Band 3	1.8 GHz
FDD Band 7	2.6 GHz
FDD Band 8	900 MHz
TDD Band 47	5.9 GHz

5.3 OFDMA TDD WMAN

5.3.1 Applicability

The requirements in Clause 5.3 are applicable to CE based upon OFDMA TDD WMAN technologies.

5.3.2 PKC security

CE **shall** comply with PKC security requirements of ITU-T Recommendation X.509 [28].

Note: This requirement has been reproduced from Part 1 to avoid a potential compliance gap during the transition period of the applicable Standards. It will be removed from Part 4 during the next revision of this Part.

Compliance with Clause 5.3.2 should be by way of a manufacturer's DoC.

5.3.3 TDD Band Class 3 (2.5 GHz)

CE used in the band listed in Table 11 **shall** comply with the requirements of ETSI EN 301 908-19 [26] for RF compatibility, network integrity and interoperability with the STS.

TABLE 11
OFDMA TDD WMAN Band Class 3

Band No.	Band frequency
TDD Band Class 3	2.5 GHz

Compliance with Clause 5.3.3 should be demonstrated by way of a test report.

5.3.4 TDD Band Class 5 (3.5 GHz)

CE used the band listed in Table 12 **shall** comply with the requirements of ETSI EN 301 908-19 [26] for RF compatibility, network integrity and interoperability with the STS.

TABLE 12
OFDMA TDD WMAN Band Class 5

Band No.	Band frequency
TDD Band Class 5	3.5 GHz

Compliance with Clause 5.3.4 should be demonstrated by way of a test report.

6 TESTING

6.1 Verification of compliance with requirements

Compliance with all mandatory requirements in this AS/CA Standard is to be verified. This may be done by direct measurement, modelling and analysis, operation or inspection.

Methods for demonstrating compliance of CE with the requirements clauses specified in this AS/CA Standard are described in the requirements clauses and in the referenced Standards.

Verification of compliance with the referenced standards may be confirmed by test reports to later versions of the referenced standards provided that all clauses of the referenced standards are shown to be met.

Alternative methods of demonstrating compliance to those described may be used if the risk of passing non-compliant CE is not increased because of increased measurement uncertainty.

PARTICIPANTS

The Working Committee responsible for the revisions made to this Standard consisted of the following organisations:

Organisation	Membership
ACMA	Non-Voting
Apple	Voting
Certification Body Australia	Voting
Comtest Laboratories	Voting
HMD Global	Voting
Motorola Mobility Australia	Voting
nbn	Voting
Samsung	Voting
Singtel Optus	Voting
Telstra	Voting

This Working Committee was chaired by Steve Vodicka of Telstra. Mike Johns of Communications Alliance provided project management support.

Communications Alliance was formed in 2006 to provide a unified voice for the Australian communications industry and to lead it into the next generation of converging networks, technologies and services.

In pursuing its goals, Communications Alliance offers a forum for the industry to make coherent and constructive contributions to policy development and debate.

Communications Alliance seeks to facilitate open, effective and ethical competition between service providers while ensuring efficient, safe operation of networks, the provision of innovative services and the enhancement of consumer outcomes.

It is committed to the achievement of the policy objective of the *Telecommunications Act 1997* - the greatest practicable use of industry self-regulation without imposing undue financial and administrative burdens on industry.



**Published by:
COMMUNICATIONS
ALLIANCE LTD**

**Level 12
75 Miller Street
North Sydney
NSW 2060 Australia**

**Correspondence
PO Box 444
Milsons Point
NSW 1565**

**T 61 2 9959 9111
F 61 2 9954 6136**

**E info@commsalliance.com.au
www.commsalliance.com.au
ABN 56 078 026 507**

Care should be taken to ensure the material used is from the current version of the Standard or Industry Code and that it is updated whenever the Standard or Code is amended or revised. The number and date of the Standard or Code should therefore be clearly identified. If in doubt please contact Communications Alliance