

**COMMUNICATIONS
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AUSTRALIAN STANDARD

AS/CA S042.4:2015

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

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

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FOREWORD

General

This Standard was prepared by Communications Alliance and most recently revised by the CECRP/WC60 *IMT-2000* Customer Equipment Standard Revision 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 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 emergency services; 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 and EMR Standards may apply under Commonwealth or State/Territory laws, or both.

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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

This document will be submitted to the ACMA, for making as a technical standard under s376 of the *Telecommunications Act 1997*. Until it is made by the ACMA compliance with this Standard is voluntary.

The Standard as made by the ACMA will commence on the day after it registered under the *Legislative Instruments Act 2003 (LIA)* and it will be a disallowable instrument within the meaning of s46A of the *Acts Interpretation Act 1901*.

For the purposes of the ACMA Standard, defined as *Telecommunications Technical Standard (Requirements for connection to an air interface of a Telecommunications Network – AS/CA S042) 2015*, the transition period is 12 months.

The ACMA also publishes Radiocommunications Advisory Guidelines and Determinations under the *Radiocommunications Act 1992* from time to time for managing interference in certain frequency bands

The ACMA is a Commonwealth authority with statutory powers to impose requirements concerning telecommunications Customer Equipment and Customer Cabling.

The ACMA requires Australian manufacturers and importers, or their Australian agents, of specified items of Customer Equipment and Customer Cabling to establish compliance with Standards such as this. Items are required to be labelled in accordance with the applicable labelling notices.

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 DR AS/CA S042.4:2014 **Requirements for connection to an air interface of a Telecommunications Network— Part 4: IMT 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.

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 (Customer Equipment and Customer Cabling) Notice* (the TLN). 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 CE in order to comply with the regulatory arrangements for such CE in Australia.

The committee has reviewed this Standard in view of the following developments:

- (a) The use of IMT CE in the following FDD Bands:
 - Band 28 (700 MHz) based upon E-UTRA FDD technologies.
 - Band 5 (850 MHz) based upon E-UTRA FDD technologies.
 - Band 8 (900 MHz) based upon E-UTRA FDD technologies.
- (b) The use of IMT CE in the following TDD Bands:
 - Band 40 (2.3 GHz) based upon E-UTRA TDD technologies.
 - Band 38 (2.5 GHz) based upon E-UTRA TDD technologies.
 - Band 42 (3.5 GHz) based upon E-UTRA TDD technologies.

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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 documents referred to in this Standard are specified in Section 3: REFERENCES.
- (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 CE. It defines the technical conditions and requirements for IMT CE that is designed or intended for use in connection with an IMT public mobile telecommunications service (PMTS) and is an addressable device.
- 2.2 This Standard applies to IMT CE based upon the following IMT 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

	Publication	Title
	Australian Standards	
[1]	AS ISO 1000 -1998	The international System of Unit (SI) and its application.
	EC Publications	
[2]	R&TTE Directive	Radiocommunications & Telecommunications Terminal Equipment Directive 1999/05/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity
	ETSI publications	
[3]	ETSI TS 122 016 V3.3.0 (2002-06)	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); International Mobile Equipment Identities (IMEI)(3GPP TS 22.016 version 3.3.0 Release 1999)
[4]	ETSI TS 123 122 V3.10.0 (2003-09)	Universal Mobile Telecommunications System (UMTS); Non-Access-Stratum functions related to Mobile Station (MS) in idle mode (3GPP TS 23.122 version 3.10.0 Release 1999)
[5]	ETSI TS 124 008 V3.20.0 (2005-12)	Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Mobile Radio Interface Layer 3 specification; Core Network Protocols; Stage 3(3GPP TS 24.008 version 3.20.0 Release 1999)
[6]	ETSI TS 125 304 V3.14.0 (2004-06)	Universal Mobile Telecommunications System (UMTS); UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode(3GPP TS 25.304 version 3.14.0 Release 1999)
[7]	ETSI TS 125 321 V3.17.0 (2004-06)	Universal Mobile Telecommunications System (UMTS); Medium Access Control (MAC) protocol specification(3GPP TS 25.321 version 3.17.0 Release 1999)

	Publication	Title
[8]	ETSI TS 125 331 V3.21.0 (2004-12)	Universal Mobile Telecommunications System (UMTS);Radio Resource Control (RRC) protocol specification(3GPP TS 25.331 version 3.21.0 Release 1999)
[9]	ETSI TS 134 123-1 V11.2.0 (2014-04)	Universal Mobile Telecommunications System (UMTS);User Equipment (UE) conformance specification; Part 1: Protocol conformance specification
[10]	ETSI TS 134 123-2 V11.3.0 (2014-07)	Universal Mobile Telecommunications System (UMTS);User Equipment (UE) conformance specification; Part 2: Implementation conformance statement (ICS) specification
[11]	ETSI TS 134 123-3 V11.2.0 (2014-04)	Universal Mobile Telecommunications System (UMTS);User Equipment (UE) conformance specification; Part 3: Abstract test suites (ATs)
[12]	ETSI TS 136 101 V12.5.0 (2014-11)	LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception
[13]	ETSI TS 136 521-1 V12.3.0 (2014-11)	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 11.4.0 Release 11)
[14]	ETSI EN 301 908-1 V6.2.1 (2013-04)	Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 1: Harmonized EN for IMT-2000, introduction and common requirements, covering essential requirements of article 3.2 of R&TTE Directive
[15]	ETSI EN 301 908-2 V6.2.1 (2013-10)	Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 2: Harmonized EN for IMT-2000, CDMA Direct Spread (UTRA FDD) (UE) covering essential requirements of article 3.2 of R&TTE Directive

	Publication	Title
[16]	ETSI EN 301 908-13 V6.2.1 (2013-10)	Electromagnetic compatibility and Radio spectrum Matters (ERM);Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 13: Harmonized EN for IMT-2000, Evolved Universal Terrestrial Radio Access (E-UTRA) (UE) covering the essential requirements of article 3.2 of the R&TTE Directive
[17]	ETSI EN 302 544-2 V1.1.1 (2009-01)	Broadband Data Transmission Systems operating in the 2,500 MHz to 2,690 MHz frequency band; Part 2: TDD User Equipment Stations; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
[18]	ETSI EN 302 623 V1.1.1 (2009-01)	Broadband Wireless Access Systems (BWA) in the 3,400 MHz to 3,800 MHz frequency band; Mobile Terminal Stations; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
FCC Requirements		
[19]	FCC Part 22 Rules	Public Mobile Services (URL: http://www.access.gpo.gov/nara/cfr/waisidx_05/47cfr22_05.html)
ITU-T Recommendations		
[20]	X.509 (11/08)	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

DoC	Declaration of Conformity
EC	European Commission
EN	European Norm
FCC	Federal Communications Commission
ID	Identifier
ME	Mobile Equipment
NB	Notified Body
R&TTE	Radiocommunications & Telecommunications Terminal Equipment
TCB	Telecommunication Certified Body
UHF	Ultra High Frequency

5 REQUIREMENTS

5.1 CE based upon UTRA FDD technologies

5.1.1 IMEI security

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

Compliance with Clause 5.1.1 should be demonstrated by way of a manufacturer's DoC.

5.1.2 ETSI requirements

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

(a) ETSI TS 123 122 [4]

(b) ETSI TS 124 008 [5]

(c) ETSI TS 125 304 [6]

(d) ETSI TS 125 321 [7]

(e) ETSI TS 125 331 [8]

Compliance with Clause 5.1.2 should be demonstrated by way of a manufacturer's DoC for mandatory requirements that are covered by formal conformance test cases validated on commercially available test platforms.

Note: Formal conformance test cases covering mandatory requirements in ETSI Core Specifications for UTRA FDD are defined in ETSI TS 134 123 [9] [10] [11]. Test vendors integrate UTRA FDD reference test suite into their test platform and validate using reference UE before commercial release.

5.1.3 CE used in FDD Band 5 (850 MHz)

5.1.3.1 RF compatibility, network integrity and interoperability with the STS

5.1.3.1.1 FCC Part 22 Rules

CE **shall** comply with the requirements of FCC Part 22 Rules [19].

Compliance with Clause 5.1.3.1.1 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.*

5.1.4 CE used in FDD Band 8 (900 MHz) and FDD Band 1 (2.1 GHz)

5.1.4.1 RF compatibility, network integrity and interoperability with the STS

CE **shall** comply with the requirements of ETSI EN 301 908-1 [14] including the requirements incorporated by reference and found in section 1 of ETSI EN 301 908-2 [15].

Compliance with Clause 5.1.4.1 should be demonstrated by way of a—

- (a) test report;*
- (b) Notified Body (NB) Expert Opinion, based on conformity assessment procedures described in the R&TTE Directive [2], Annex IV; or*
- (c) manufacturer's DoC, based on conformity assessment procedures described in the R&TTE Directive [2], Annex V.*

5.2 CE based upon E-UTRA FDD & E-UTRA TDD technologies

5.2.1 IMEI security

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

Compliance with Clause 5.2.1 should be by way of a manufacturer's DoC.

5.2.2 CE used in FDD Band 1 (2.1 GHz), FDD Band 3 (1.8 GHz), FDD Band 7 (2.6 GHz), FDD Band 8 (900 MHz), TDD Band 38 (2.5 GHz), TDD Band 40 (2.3 GHz) and TDD Band 42 (3.5 GHz)

5.2.2.1 RF compatibility, network integrity and interoperability with the STS

CE **shall** comply with the requirements of ETSI EN 301 908-1 [14] and ETSI EN 301 908-13 [16].

Compliance with Clause 5.2.2.1 should be demonstrated by way of a—

- (a) test report;*
- (b) Notified Body (NB) Expert Opinion, based on conformity assessment procedures described in the R&TTE Directive [2], Annex IV; or*
- (c) manufacturer's DoC, based on conformity assessment procedures described in the R&TTE Directive [2], Annex V.*

- 5.2.3 CE used in FDD Band 28 (700 MHz)
- 5.2.3.1 RF compatibility, network integrity and interoperability with the STS

CE **shall** comply with the transmitter and receiver requirements of Clauses 6 and 7 of ETSI TS 136 101 [12].

Note 1: At time of publication of this Standard, the ACMA has released spectrum in FDD Band 28 (700 MHz) in Australia from (a) 703 MHz to 748 MHz (the 700 MHz lower band); and (b) 758 MHz to 803 MHz (the 700 MHz upper band).

Note 2: Formal conformance test cases covering mandatory transmitter and receiver requirements for E-UTRA FDD Band 28 are defined in ETSI TS 136 521-1 [13].

Compliance with Clause 5.2.3.1 should be demonstrated by way of a—

- (a) test report; or*
- (b) manufacturer's DoC,*

against the mandatory transmitter and receiver requirements of ETSI TS 136 101 [12] which are designated by the words 'shall' or 'shall not'.

- 5.2.4 CE used in FDD Band 5 (850 MHz)
- 5.2.4.2 RF compatibility, network integrity and interoperability with the STS
- 5.2.4.2.2 FCC Part 22 Rules

CE **shall** comply with the requirements of FCC Part 22 Rules [19].

Compliance with Clause 5.2.4.2.2 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.*

5.3 CE based upon OFDMA TDD WMAN technologies

- 5.3.1 PKC security

CE **shall** comply with PKC security requirements of ITU-T Recommendation X.509 [20].

Compliance with Clause 5.3.1 should be by way of a manufacturer's DoC.

5.3.2 CE used in TDD Band Class 3 (2.5 GHz)

5.3.2.1 RF compatibility, network integrity and interoperability with the STS

CE **shall** comply with the requirements of ETSI EN 302 544-2 [17].

Compliance with Clause 5.3.2.1 should be demonstrated by way of a test report.

5.3.3 CE used in TDD Band Class 5 (3.5 GHz)

5.3.3.1 RF compatibility, network integrity and interoperability with the STS

CE **shall** comply with the requirements of ETSI EN 302 623 [18].

Compliance with Clause 5.3.3.1 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
Comtest Laboratories	Voting
Ericsson	Voting
Motorola Mobility	Voting
Samsung	Voting
SingTel Optus	Voting
Telstra	Voting
Vodafone Hutchison Australia	Voting

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

NOTES

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.



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