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AUSTRALIAN STANDARD

AS/CA S042.1:2025

# Requirements for connection to an air interface of a Telecommunications Network— Part 1: General

Australian STANDARD

**Australian Standard – Requirements for connection to an air interface of a Telecommunications Network— Part 1: General**

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# FOREWORD

## General

This Standard was prepared by Communications Alliance and most recently revised by the WC107 : *PMTS and Satellite Service Customer Equipment Standards* 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 was a reference to the ACMA.

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This Standard is a revision of AS/CA S042.1: 2022 *Requirements for connection to an air interface of a Telecommunications Network— Part 1: General*.

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.

AS/CA S042 consists of the following Parts under the general title *Requirements for connection to an air interface of a Telecommunications Network*:

- Part 1: General
- Part 2: CDMA (IS-95) (withdrawn)
- Part 3: GSM Customer Equipment (withdrawn)
- Part 4: IMT-2000 and IMT-Advanced Customer Equipment
- Part 5: IMT-2020 Customer Equipment

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## Regulatory notice

The 2025 version of AS/CA S042.1 is mandated by the ACMA *Telecommunications (Mobile Equipment Air Interface) Technical Standard 2022*. A 12-month transition period for AS/CA S042.1:2022 applies commencing on the day AS/CA S042.1:2025 is published.

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:

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# INTRODUCTION

This introduction for the AS/CA S042.1 ***Requirements for connection to an air interface of a Telecommunications Network— Part 1: General*** 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, the factors that have been taken into account in its development and to list the principal 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 Australian Communications and Media Authority (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 2025* (the TLN). The TLN can be obtained from the ACMA website at www.acma.gov.au.

The objective of this Standard is to provide the requirements and test methods for customer equipment for use in connection with a PMTS or a Satellite Service in order to meet the regulatory arrangements for such equipment in Australia. Additional requirements for specific technologies are addressed in other Parts of this Standard.

The primary objective of this revision is to update the Emergency Call Services (ECS) requirements and introduce new requirements for Emergency Cell Broadcast (ECB) for the National Messaging System (NMS), and to review the requirements for satellite services.

This edition of the Standard introduces new requirements for CE to support the NMS, which utilises Cell Broadcast (CB) technology to distribute targeted Emergency Warning Messages to compatible mobile phones and other devices in near real time. The requirements are based on ETSI Standards used for the European EU-Alert Public Warning System and follow a similar approach as in other jurisdictions, such as the US CMAS (Commercial Mobile Alert System) (also known as Wireless Emergency Alerts (WEA)) and the Japanese Earthquake and Tsunami Warning System (ETWS).

This Standard does not include general requirements for CE accessing Non-Terrestrial Networks (NTN). These requirements, including those for Emergency Call Services (ECS) and Emergency Cell Broadcast (ECB), are under development within the 3GPP and will be reviewed at a future point in time when they become stable. Radiofrequency (RF) requirements for NTN spectrum bands are specified in other Parts of this Standard.

The principal differences between this edition of AS/CA S042.1 and the previous edition are—

(i) updates to the references, including clarifying the applicability of versions of ETSI Standards (Section 3);

(ii) adding new requirements for Emergency Cell Broadcast to support the National Messaging System (Clause 5.2.3);

(iii) adding new requirements for emergency registration (Clause 5.2.2.1 (f);

(iv) incorporating the use of QR Codes for power-fail advice warnings (Clause 5.4); and

(v) clarifying the test methods for CE operating in ECS Access Mode, including support for camp-on (Clause 6.2.1.2).

# TABLE OF CONTENTS

## APPENDICES



## FIGURES



## TABLES

# 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 Customer Equipment (CE) that is designed or intended for connection to—

(a) a PMTS and is an addressable device; or

(b) a Satellite Service and is an addressable device;

or both.

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 does not apply to CE which is not an addressable device such as GPS terminal and satellite navigation system.

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.

2.4 For additional technical requirements applying to a particular CE, this Standard should be read in conjunction with those Standards listed in the REFERENCES of this Standard.

# 3 REFERENCES

For ETSI Standards where a Release is cited (e.g. Release 14, 15 or 18), the applicable minimum Standard is the latest version of that Standard in the same Release.

However, parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent Releases and versions of the cited documents.

| | Publication | Title |
|---|---|---|
| | **Australian Standards** | |
| [1] | AS ISO 1000-1998 | The international System of Unit (SI) and its application. |
| | **AS/CA Standards** | |
| [2] | AS/CA S003.1:2010 | Requirements for Customer Access Equipment for connection to a Telecommunications Network<br><br>Part 1: General<br><br>http://commsalliance.com.au/Documents/all/Standards/s003_1 |
| [3] | AS/CA S004:2013 | Voice performance requirements for Customer Equipment<br><br>http://commsalliance.com.au/Documents/all/Standards/s004 |
| | **Communications Alliance Codes** | |
| [4] | C536:2020 | Emergency Call Service Requirements Industry Code (incorporating Amendment No.1/2015) |
| | **Communications Alliance Guidelines** | |
| [5] | G557.6:2019 | Location Information for Emergency Calls<br><br>Part 6: Advanced Mobile Location (AML) |
| [6] | G616:2013 | Acoustic safety for telephone equipment |
| | **IEC Standard** | |
| [7] | IEC 61672-1:2013 | Electroacoustics – Sound level meters – Part 1: Specifications |

| | Publication | Title |
|---|---|---|
| | **ITU-R Recommendations** | |
| [8] | M.1224-1 (03/2012) | Vocabulary of terms for International Mobile Telecommunications (IMT) |
| [9] | M.1457-14 (01/2019) | Detailed specifications of the terrestrial radio interfaces of International Mobile Telecommunications-2000 (IMT-2000) |
| [10] | M.2012 2019-11) | Detailed specifications of the terrestrial radio interfaces of International Mobile Telecommunications Advanced (IMT-Advanced) |
| [11] | M.2083-0 (09/2015) | IMT Vision - "Framework and overall objectives of the future development of IMT for 2020 and beyond" |
| | **ITU-T Recommendations** | |
| [12] | P.57 (12/11) | Artificial ears |
| [13] | X.509 (10/16) | Information technology - Open Systems Interconnection - The Directory: Public-key and attribute certificate frameworks |
| | **ETSI Standards & Reports** | |
| [14] | ETSI TS 102 900 V1.4.1 (2023-06) | Emergency Communications (EMTEL); European Public Warning System (EU-ALERT) using the Cell Broadcast Service |
| [15] | ETSI TS 103 465 | Smart Cards; Smart Secure Platform (SSP); Requirements Specification (Release 15) |
| [16] | ETSI TS 103 625 V1.1.1 (2019-12) | Emergency Communications (EMTEL); Transporting Handset Location to PSAPs for Emergency Calls - Advanced Mobile Location |
| [17] | ETSI TR 121 905 | Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Vocabulary for 3GPP Specifications (3GPP TR 21.905 Release 15) |
| [18] | ETSI TS 122 016 | Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; International Mobile station Equipment Identities (IMEI) (3GPP TS 22.016 Release 15) |
| [19] | ETSI TS 122 022 | Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile |

| | Publication | Title |
|---|---|---|
| | | Telecommunications System (UMTS); LTE; Personalisation of Mobile Equipment (ME); Mobile functionality specification (3GPP TS 22.022 Release 14) |
| [20] | ETSI TS 122 101 | Universal Mobile Telecommunications System (UMTS); LTE; Service aspects; Service principles (3GPP TS 22.101 Release 15) |
| [21] | ETSI TS 123 003 | Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Numbering, addressing and identification (3GPP TS 23.003 Release 15) |
| [22] | ETSI TS 123 041 | Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Technical realization of Cell Broadcast Service (CBS) (3GPP TS 23.041 Release 15) |
| [23] | 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 Release 15) |
| [24] | ETSI TS 124 229 | Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 Release 15) |
| [25] | ETSI TS 124 301 | Universal Mobile Telecommunications System (UMTS); LTE; Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3 (3GPP TS 24.301 Release 15) |
| [26] | ETSI TS 124 501 | 5G; Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3 (3GPP TS 24.501 Release 15) |
| [27] | ETSI TS 131 111 | Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Universal Subscriber Identity Module (USIM) Application Toolkit (USAT) (3GPP TS 31.111 Release 15) |

| | Publication | Title |
|---|---|---|
| [28] | ETSI TS 133 501 | 5G; Security architecture and procedures for 5G System (3GPP TS 33.501 Release 15) |
| [29] | ETSI TS 136 304 | LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode (3GPP TS 36.304) |
| [30] | ETSI TS 137 355 | LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); LTE Positioning Protocol (LPP) (3GPP TS 37.355 Release 15) |
| [31] | ETSI TS 138 304 | 5G; NR; User Equipment (UE) procedures in Idle mode and in RRC Inactive state (3GPP TS 38.304) |
| | **FCC Requirements** | |
| [32] | FCC Title 47 CFR Part 10 | 47 CFR 10.520 Common audio attention signal (URL: https://www.ecfr.gov/current/title-47/section-10.520 ) |

# 4 ABBREVIATIONS AND DEFINITIONS

For the purposes of this Standard, the following abbreviations, acronyms and definitions apply:

## 4.1 Abbreviations

| | |
|---|---|
| 3G | The third generation of mobile phone technologies covered by the ITU IMT family |
| 3GPP | 3rd Generation Partnership Project |
| 4G | The fourth generation of mobile phone technologies covered by the ITU IMT family |
| 5G | The fifth generation of mobile phone technologies covered by the ITU IMT family |
| 5G-GUTI | 5G Globally Unique Temporary Identifier |
| 5GC | 5G Core Network |
| 5G NR | 5G New Radio |
| ACA | Australian Communications Authority |
| ACMA | Australian Communications and Media Authority |
| ACIF | Australian Communications Industry Forum |
| AML | Advanced Mobile Location |
| AS | Australian Standard |
| CBS | Cell Broadcast Service |
| CDMA | Code Division Multiple Access |
| CE | Customer Equipment |
| CMAS | Commercial Mobile Alert System |
| CSP | Carriage Service Provider |
| DoC | Declaration of Conformity |
| DRP | (ear) Drum Reference Point |
| ECB | Emergency Cell Broadcast |
| ECC | Emergency Call Code |
| ECS | Emergency Call Service |
| ECID | Enhanced Cell Identification |
| ECP | Emergency Call Person |
| EDGE | Enhanced Data rates for GSM Evolution |
| EMC | Electromagnetic Compatibility |
| EMR | Electromagnetic Radiation |
| EPC | Evolved Packet Core |
| ERP | Ear Reference Point |
| ESN | Emergency Service Number |
| EU | European Union |
| eUICC | embedded Universal IC Card |
| ETSI | European Telecommunications Standard Institute |
| E-UTRA | Evolved UTRA. Also referred to as LTE. |
| FDD | Frequency Division Duplexing |

| | |
|---|---|
| GNSS | Global Navigation Satellite System |
| GPRS | General Packet Radio Service |
| GPS | Global Positioning System |
| GSM | Global System for Mobile Communications |
| GUTI | Globally Unique Temporary Identifier |
| HPLMN | Home Public Land Mobile Network |
| IC | Integrated Circuit |
| IEC | International Electrotechnical Commission |
| IMEI | International Mobile station Equipment Identity |
| IMEISV | International Mobile station Equipment Identity and Software Version Number |
| IMS | IP Multimedia Subsystem |
| IMSI | International Mobile Subscription Identity |
| IMT | International Mobile Telecommunications |
| ISIM | IMS (IP Multimedia Subsystem) Services Identity Module |
| ISO | International Standards Organization |
| ITU | International Telecommunications Union |
| ITU-R | International Telecommunications Union – Radiocommunications Sector |
| ITU-T | International Telecommunication Union – Telecommunications Standardization Sector |
| IVR | Interactive Voice Response |
| LPP | LTE Positioning Protocol |
| LTE | Long Term Evolution |
| MS | Mobile Station |
| MSISDN | Mobile Services Integrated Services Digital Number |
| NMS | National Messaging System |
| NR | New Radio |
| OFDMA TDD WMAN | Orthogonal Frequency Division Multiple Access TDD Wireless Metropolitan Area Network (also referred to as Mobile WiMAX) |
| PEI | Permanent Equipment Identifier |
| PIDF | Presence Information Data Format |
| PIN | Personal Identification Number |
| PKC | Public Key Certificate |
| PLMN | Public Land Mobile Network |
| PMTS | Public Mobile Telecommunications Service |
| PSTN | Public Switched Telephone Network |
| PWS | Public Warning System |
| RF | Radio Frequency |
| RMS | Root Mean Square |
| RVA | Recorded Voice Announcement |
| SIM | Subscriber Identity Module |
| SPL | Sound Pressure Level |

| | |
|---|---|
| SIP | Session Initiation Protocol |
| SM | Short Message |
| STS | Standard Telephone Service |
| SUCI | Subscription Concealed Identifier |
| TDD | Time Division Duplexing |
| TLN | Telecommunications Labelling Notice |
| TMSI | Temporary Mobile Subscriber Identity |
| TTY | Telephone typewriter/textphone |
| UICC | Universal IC Card |
| UMTS | Universal Mobile Telecommunications System |
| USIM | Universal Subscriber Identity Module |
| UTRA | Universal Terrestrial Radio Access (also referred to as UMTS) |
| VPLMN | Visited Public Land Mobile Network |
| WEA | Wireless Emergency Alert |
| WiMAX | Worldwide Interoperability for Microwave Access |

## 4.2 Definitions

### 4.2.1 3GPP technologies

3GPP technologies as specified by ETSI and 3GPP.

Note 1: Includes—

(a) GSM (2G or second generation);

(b) GPRS and EDGE (commonly referred to as 2.5G);

(c) IMT-2000 (3G or third generation – UTRA);

(d) IMT-2000 and IMT-Advanced (4G or fourth generation – E-UTRA (LTE)); and

(e) IMT-2020 (5G or fifth generation – 5G New Radio (5G NR) or 5G NR and E-UTRA (LTE)).

Note 2: There are a number of IMT technologies under ITU-R Recommendation M.1457-14 [9] which cannot be classified as being 3GPP technologies such as OFDMA TDD WMAN and CDMA TDD.

### 4.2.2 5G Core Network (5GC)

Fifth Generation core network technology as specified by 3GPP.

Refer to ETSI TR 121 905 [17].

### 4.2.3 5G New Radio (5G NR)

Fifth generation radio access technology as specified by 3GPP.

Refer to ETSI TR 121 905 [17].

### 4.2.4 Acoustic shock

Any temporary or permanent disturbance of the functioning of the ear, or of the nervous system, which may be caused to the user of a telephone earphone by a sudden sharp rise in the acoustic pressure produced by it.

Note 1: Acoustic shock may include acoustic trauma, but can occur at sound levels considerably lower than those necessary to cause acoustic trauma.

Note 2: This definition is the one used by ETSI and ITU-T.

### 4.2.5 Addressable device

An addressable device is CE which can be identified by the Telecommunications Network operator for the purposes of two-way communications with that CE.

### 4.2.6 Advanced Mobile Location (AML)

Location information derived by Mobile Station Equipment using its built-in positioning methods, including—

(a) assisted GNSS;

(b) GNSS;

(c) Wi-Fi; or

(d) cellular.

Refer to ETSI TS 103 625 [16] and G557.6 [5].

### 4.2.7 Air interface

A radio frequency (RF) link between CE and a Telecommunications Network.

### 4.2.8 Camp-on

The action of camping on a cell to get access to some services.

Refer to ETSI TS 136 304 [29] and ETSI TS 138 304 [31].

### 4.2.9 Carriage Service Provider (CSP)

Refer to s7 of the *Telecommunications Act 1997*.

### 4.2.10 Carrier

Refer to s7 of the *Telecommunications Act 1997*.

### 4.2.11 Cell Broadcast Service (CBS)

CBS allows for the sending of unacknowledged messages to all supporting CE within a defined area. CBS provides for a one-to-many geo-targeted and geo-fenced messaging service.

Note: A general description of the CBS is provided in Clause 2 of ETSI 123 041 [22].

### 4.2.12 Customer

A person who is contracted to a Carrier or Carriage Service Provider (CSP) for the supply of a Carriage Service in association with a Public Number.

Refer to C536 [4].

### 4.2.13 Customer Equipment (CE)

Refer to s7 of the *Telecommunications Act 1997*.

### 4.2.14 Drum Reference Point (DRP)

A point located at the end of the ear canal, corresponding to the ear-drum position.

### 4.2.15 Ear Reference Point (ERP)

A virtual point for geometric reference located at the entrance to the listener's ear, traditionally used for calculating telephonometric loudness ratings.

### 4.2.16 Embedded Universal Integrated Circuit Card (eUICC)

A UICC which is not easily accessible or replaceable, is not intended to be removed or replaced in the terminal, and enables the secure changing of subscriptions.

Note: The term originates from 'embedded UICC'.

Refer to ETSI TS 103 465 [15].

### 4.2.17 Emergency Call

Refer to the *Telecommunications (Emergency Call Service) Determination 2019*.

### 4.2.18 Emergency Call Person for 000 and 112

The ECP who is the recognised person who operates an ECS for the Emergency Service Numbers 000 and 112.

Note: At the time of registration of C536, the ECP for 000 and 112 was Telstra.

Refer to C536 [4]

### 4.2.19 Emergency Call Service (ECS)

Refer to s7 of the Telecommunications Act 1997.

### 4.2.20 Emergency Call Service Access Mode

A CE mode of operation in which a CE is designed to access an ECS via a PMTS or a Satellite Service.

Note: CE designed for initiating calls to a limited set of numbers other than an ESN, e.g. those connecting to an answering point which is not the ECP for 000 and 112, are not considered to be operating in ECS Access Mode. These devices typically store pre-programmed numbers.

### 4.2.21 Emergency Cell Broadcast (ECB)

A Public Warning System (PWS) utilising cell broadcast, otherwise defined as Emergency Warning Messages over CB.

Note: PWS services allow networks to distribute warning messages on behalf of public authority, enabling distribution of EU-Alert warning messages in E-UTRAN and NG-RAN, CMAS (Commercial Mobile Alert System)(also known as Wireless Emergency Alerts (WEA)) and the Earthquake and Tsunami Warning System (ETWS).

Refer to ETSI TS 123 041 [22].

### 4.2.22 Emergency Service Number (ESN)

Refer to Part 3 of the *Telecommunications Numbering Plan 2015*.

### 4.2.23 Evolved Packet Core (EPC)

Fourth generation core network technology as specified by 3GPP.

Refer to ETSI TR 121 905 [17].

### 4.2.24 Evolved Universal Terrestrial Radio Access (E-UTRA)

3GPP technologies definition for Evolved Universal Terrestrial Radio Access (E-UTRA) as specified by 3GPP.

Refer to ETSI TR 121 905 [17].

### 4.2.25 Gateway Device

CE that—

(a) incorporates a Local Port and/or an RF interface; and

(b) does not incorporate any keys for the initiating of an Emergency Call to the ESNs or an acoustic coupler device.

### 4.2.26 Globally Unique Temporary Identifier (GUTI)

A unique temporary identity to provide an unambiguous identification of the UE without revealing its permanent identity.

Refer to ETSI TS 123 003 [21]

### 4.2.27 Handset

The part of the CE which is held by the user in conversation mode and has the acoustic transmitter and receiver transducers mounted in it.

### 4.2.28 Identity module

A Subscriber Identity Module (SIM), a Universal Subscriber Identity Module (USIM) or an IMS (IP Multimedia Subsystem) Services Identity Module (ISIM) which is used in the authentication procedures and contains the subscriber identity as well as other subscriber data.

Note: An identity module stored in an eUICC is commonly known as Embedded Subscriber Identity Module or eSIM.

### 4.2.29 International Mobile station Equipment Identity (IMEI)

A unique number which is allocated to each individual mobile station (MS) equipment in the Public Land Mobile Network (PLMN) and unconditionally implemented by the MS manufacturer at the time of manufacture.

Refer to ETSI TS 122 016 [18].

### 4.2.30 International Mobile station Equipment Identity and Software Version Number (IMEISV)

A string of decimal digits composing of the IMEI and a software version number identifying software version of the mobile station (MS).

Refer to ETSI TS 123 003 [21]

### 4.2.31 International Mobile Subscription Identity (IMSI)

A string of decimal digits that identifies a unique mobile terminal or mobile subscriber internationally.

Refer to ETSI TS 123 003 [21].

### 4.2.32 IMT

Root name that encompasses both IMT-2000, IMT-Advanced and IMT-2020 collectively as specified in ITU-R Recommendation M.1224-1 [8].

Note: The complete specification provides requirements for not only the IMT CE but also includes the infrastructure requirements.

### 4.2.33 IMT Customer Equipment

CE that is designed or intended for use in connection with an IMT PMTS. IMT CE based upon UTRA FDD, E-UTRA FDD and E-UTRA TDD technologies has either a Subscriber Identity Module (SIM) or a Universal Subscriber Identity Module (USIM). An IMT CE includes all equipment including terminal adapters required for provision of speech teleservices, bearer and supplementary services.

### 4.2.34 IMT-2000

International Mobile Telecommunications-2000 (IMT-2000) as specified by ITU-R Recommendation M.1457-14 [9].

4.2.35 IMT-2020

International Mobile Telecommunications-2020 (IMT-2020) as specified by ITU-R Recommendation M.2083-0 [11].

4.2.36 IMT-Advanced

International Mobile Telecommunications-Advanced (IMT-Advanced) as specified by ITU-R Recommendation M.2012 [10].

4.2.37 IMS Services Identity Module

An application residing on the UICC that provides access to IP Multimedia Services.

Refer to ETSI TR 121 905 [17].

4.2.38 Local Port

Refer to AS/CA S003.1 [2].

4.2.39 Mobile Carrier

A Carrier that owns or operates a controlled network or controlled facility used to supply a PMTS.

4.2.40 Mobile Station Equipment

The term used in ETSI Publications to describe CE.

4.2.41 Multi-service CE

CE with ECS Access Modes using multiple network interfaces, including, but not limited to, devices with satellite/3GPP or satellite/IMT network interfaces.

4.2.42 National Messaging System (NMS)

Australian implementation of an ECB.

4.2.43 National Messaging System (NMS) Alerts

The National Messaging System Alerts are—

(a) NMS Critical Alert – equivalent to EU-Alert Level 1.

(b) NMS Priority Alert – equivalent to EU-Alert Level 2.

(c) Exercise – equivalent to EU-Exercise.

(d) Test – equivalent to EU-Monthly Test.

(e) Operator Test – equivalent to EU-Reserved.

(f) State/Local Test – equivalent to EU-Test.

4.2.44 Permanent Equipment Identifier (PEI)

The means to identify a 5G CE by the network, comprising of a PEI type and an identifier dependent on the value of the PEI type.

Refer to ETSI TS 123 003 [21] and ETSI TS 124 501 [26]

4.2.45 Public Key Certificate (PKC)

The public key of a user, together with some other information, rendered unforgeable by digital signature with the private key of the certification authority which issued it.

Refer to ITU-T X.509 [13].

4.2.46 Public Mobile Telecommunications Service (PMTS)

Refer to s32 of the *Telecommunications Act 1997*.

Note: An IMS-based voice over Wi-Fi service is included under the PMTS.

4.2.47 Satellite-Based Facility

Refer to s7 of the *Telecommunications Act 1997*.

4.2.48 Satellite Service

Refer to the *Telecommunications (Emergency Call Service) Determination 2019*.

4.2.49 Standard Telephone Service (STS)

Refer to the *Telecommunications (Consumer Protection and Service Standards) Act 1999*.

4.2.50 Subscriber Identity Module (SIM)

A physically removable module which is used in the authentication procedures and contains the subscriber identity as well as other subscriber data.

4.2.51 Subscription Concealed Identifier (SUCI)

A privacy preserving identifier of a 5G CE subscriber containing the concealed permanent identifier.

Refer to ETSI TS 123 003 [21]

4.2.52 Telecommunications Device Identifier

Refer to s473.1 of the *Criminal Code Act 1995*.

Note 1: Means an IMEI for CE using 3GPP technologies excluding CE for which PEI is the equipment identifier.

Note 2: Means an IMEI or IMEISV as the PEI for CE using 3GPP technologies for which PEI is the equipment identifier.

Note 3: Means a PKC for CE using OFDMA TDD WMAN technologies.

### 4.2.53 Telecommunications Network (TN)

Refer to s374(1) of the *Telecommunications Act 1997*.

Note: In this Standard, this term means the telecommunications network that is used to supply the PMTS or Satellite Service by a Carrier or CSP.

### 4.2.54 Universal Integrated Circuit Card (UICC)

A physically secure device, an IC card (or 'smart card'), that can be inserted and removed from the terminal. It may contain one or more applications. One of the applications may be a USIM.

Refer to ETSI TR 121 905 [17].

### 4.2.55 Universal Subscriber Identity Module (USIM)

An application residing on the UICC used for accessing services provided by mobile networks, which the application is able to register on with the appropriate security.

Refer to ETSI TR 121 905 [17].

### 4.2.56 Universal Terrestrial Radio Access (UTRA)

3GPP technologies definition for Universal Terrestrial Radio Access (UTRA) as specified by 3GPP.

### 4.2.57 User Equipment (UE)

The term used in ETSI Publications to describe CE.

# 5 REQUIREMENTS

## 5.1 General

### 5.1.1 Emergency Call Service access

CE designed for voice communications operating in ECS Access Mode **shall** allow the initiating of an Emergency Call when connected to or intended for use in connection to the following carriage services:

| Emergency Service Number | PMTS | | Satellite Services |
|---|---|---|---|
| | 3GPP technologies | OFDMA TDD WMAN technology | |
| 000 | Initiate | Initiate | Initiate |
| 112 | Initiate | - | - |

Note 1: These requirements are specifically in reference to the capability of the CE for the initiating of an Emergency Call to the air interface. It does not place requirements on the network side (i.e. on the Carrier) of the air interface or for successful call completion.

Note 2: These requirements include all means of initiating an Emergency Call including, for example, numeric keys, alphanumeric keys, voice, motion and other non-keyed means. The requirements for manual keying are addressed in Clauses 5.2.2.1(d) and 5.3.2.

Note 3: 000 is the primary ESN in Australia for access from both wireline and wireless services. 106 is a secondary ESN in Australia which can only be accessed from fixed line services by TTYs. It is for the text-based ESN for people who are deaf or have hearing or speech impairment. 112 is a secondary ESN in Australia which can only be accessed from PMTS employing 3GPP technologies. It is also the international standard ESN for PMTS employing 3GPP technologies.

Note 4: Voice communications also includes artificial voice.

*Compliance with Clause 5.1.1 should be checked by using the method described in Clause 6.2.*

### 5.1.2 Multi-service CE

Multi-service CE **shall** comply with the requirements applicable to each service.

Note 1: The requirements described in Clause 5.2 for CE use in connection with a PMTS are not applicable if a multi-service CE is connected to a Satellite Service; and the requirements described in Clause 5.3 for CE use in connection with a Satellite Service are not applicable if a multi-service CE is connected to a PMTS.

Note 2: PMTS can also be delivered via a Satellite-Based Facility. However, the requirements described in Clause 5.2 for CE use in connection with a PMTS are not applicable if a multi-service CE is connected to a PMTS which is solely delivered via a Satellite-Based Facility. For

future study and new requirements may be introduced in a future edition.

*Compliance with Clause 5.1.2 of Multi-service CE should be checked using the methods described in Clauses 5.2 and 5.3 for the applicable service.*

5.1.3 Gateway Device

CE that functions as a Gateway Device **shall** comply with the requirements of Clauses 5.1.1, 5.1.2 and 5.4.

Note: To initiate a call to ESNs 000 and 106 in ECS Access Mode, a Gateway Device may also require the connection of other equipment, such as a PSTN handset via a Local Port, or a cordless phone via an RF interface.

*Compliance with Clause 5.1.3 of Gateway Devices should be checked using the methods described in Clauses 5.1.1, 5.1.2 and 5.4.*

## 5.2 CE used in connection with a PMTS

5.2.1 Application

The requirements of Clause 5.2.2 are applicable to CE connected to or intended for use in connection with a PMTS and operating in ECS Access Mode.

The requirements of Clause 5.2.3 are applicable to CE that is—

(a) connected to or intended for use in connection with a PMTS;

(b) designed to support the display of text communications; and

(c) supports Emergency Cell Broadcast functionality;

and **shall** support access of Cell Broadcast Service (CBS) and Emergency Cell Broadcast (ECB) message reception and display.

5.2.2 Emergency Call Service access

5.2.2.1 Emergency Service Number

(a) Firmware

(i) CE using 3GPP technologies **shall** store the ESNs 000 and 112 in its firmware in accordance with ETSI TS 122 101 [20].

(ii) CE using 3GPP technologies **shall not** store the ESN 106 in its firmware.

(iii) Where an Identity Module is not present in the CE, CE using 3GPP technologies **shall** allow the initiating of an Emergency Call to the ESNs 000 and 112 stored in its firmware in accordance with ETSI TS 122 101 [20].

*Compliance with Clause 5.2.2.1(a) should be checked using the method described in Clause 6.2.1.*

(b) Mobile identity

(i) Where an Identity Module is not present in the CE, CE using 3GPP technologies **shall** send an IMEI/PEI to the Telecommunications Network when it is initiating an Emergency Call to the ESNs 000 and 112 in accordance with ETSI TS 124 008 [23], ETSI TS 124 301 [25] and ETSI TS 124 501 [26].

(ii) Where an Identity Module is present in the CE, CE using 3GPP technologies **shall** send an IMEI/PEI to the Telecommunications Network when it is initiating an Emergency Call to the ESNs 000 and 112 in the following call cases:

(A) Identity Module is blocked as per ETSI TS 124 008 [23], ETSI TS 124 301 [25] and ETSI TS 124 501 [26].

(B) Identity Module is PIN enabled, waiting for PIN input as per ETSI TS 124 008 [23], ETSI TS 124 301 [25] and ETSI TS 124 501 [26].

(C) Identity Module is invalidated by the Telecommunications Network as per ETSI TS 124 008 [23], ETSI TS 124 301 [25] and ETSI TS 124 501 [26]

(D) Incorrect Identity Module inserted as per ETSI TS 122 022 [19].

(E) Damaged or faulty Identity Module, as per ETSI TS 124 008 [23], ETSI TS 124 301 [25] and ETSI TS 124 501 [26].

(F) IMS Emergency Call without emergency registration as per ETSI TS 124 229 [24].

(G) 5G Core Emergency Call without emergency registration as per ETSI TS 124 229 [24].

(iii) Where an Identity Module is present in the CE, CE using 3GPP technologies **shall** send a TMSI, IMSI, GUTI, SUCI or 5G-GUTI to the Telecommunications Network when it is initiating an Emergency Call to the Emergency Service Numbers 000 and 112 excluding call cases scoped under Clause 5.2.2.1(b)(ii) as per ETSI TS 124 008 [23], ETSI TS 124 229 [24], ETSI TS 124 301 [25] and ETSI TS 124 501 [26].

Note: At time of publication, typical technologies requiring Identity Modules include 3GPP technologies.

*Compliance with Clause 5.2.2.1(b) should be demonstrated by way of a manufacturer's DoC to the applicable Emergency Call related mobile identity requirements (refer to Appendix B in this Standard) in ETSI TS 124 008 [23], ETSI TS 124 301[25], ETSI TS 124 501 [26] and ETSI TS 124 229 [24].*

(c) ECC field

Where an Identity Module is present in the CE excluding the call cases scoped under Clause 5.2.2.1(b)(ii) CE **shall**—

(i) be able to read the ECC field on the Identity Module supplied by a Carrier or CSP; and

(ii) allow the initiating of an Emergency Call to the ESN 000 stored in the ECC field.

Note: C536 [4] specifies that Carriers and CSPs must ensure that new Identity Modules supplied by Carriers and CSPs to their Customers are correctly programmed with ESN 000 in the ECC field of the Identity Module. There are no requirements in C536 [4] to populate ESNs 112 and 106 in the ECC field of the Identity Module.

*Compliance with Clause 5.2.2.1(c) should be checked using the method described in Clause 6.2.1.*

(d) Numeric keys

By the user manually entering the digits at the time the connection is required, CE that incorporates numeric keys for the primary purpose of initiating calls—

(i) **shall** allow the initiating of an Emergency Call to the ESN 000; and

(ii) for CE using 3GPP technologies, **shall** allow the initiating of an Emergency Call to the ESN 112.

Note 1: Numeric keys include physical buttons and screen-based 'soft' keys found on CE.

Note 2: If numeric keys remain visible under any lock condition (e.g. software or hardware lock) then the requirements of this Clause apply.

Note 3: CE may have means other than numeric keys for call setup, e.g. alphanumeric keys, voice, motion and other non-keyed means. There is no requirement placed on these under Clause 5.2.2.1(d) as these are addressed in Clause 5.1.1.

*Compliance with Clause 5.2.2.1(d) should be checked using the method described in Clause 6.2.1.*

(e) Emergency Call safeguard

When complying with the requirements for ECS outlined in Clause 5.2.2, CE should be designed in such a manner to minimise the accidental or unintentional initiation of Emergency Calls.

Note: For a dedicated Emergency Call button, this could be achieved by a two stage process requiring a user to confirm their intention to initiate an Emergency Call prior to the Emergency Call actually being initiated.

*Compliance with Clause 5.2.2.1(e) should be checked by operation and inspection.*

(f) Emergency registration

When complying with the requirements for ECS outlined in Clause 5.2.2, CE **shall** be designed in such a manner to only initiate an IMS emergency registration when initiating an Emergency Call.

*Compliance with Clause 5.2.2.1(f) should be demonstrated by way of a manufacturer's DoC*

(g) Locks

When the CE is in any lock or unlock condition, including security code, key lock and blocked Identity Module, CE **shall** either—

(i) allow the initiating of an Emergency Call to the ESNs 000 and 112; or

(ii) provide directions for the user to disable the lock where CE prevents initiating of an Emergency Call to the ESNs 000 and 112 when a lock is enabled.

In (g)(ii) the directions for the user to disable the lock **shall** be made available to the user on the CE either before or during an attempt to call the ESNs 000 and 112.

*Compliance with Clause 5.2.2.1(g) should be checked using the method described in Clause 6.2.1.*

(h) Location – AML within Australia

Where CE is registered on either its HPLMN or a VPLMN used for the Emergency Call and has an operating system that has been designed to support AML and has GNSS functionality:

(i) CE using 3GPP technologies **shall** provide Advanced Mobile Location (AML) information in accordance with AML version 1 in ETSI TS 103 625 [16] except for IMEI and IMSI.

(ii) Within 25 seconds after successful initiation of an Emergency Call, CE that incorporates AML functionality **shall** initiate a Short Message (SM) containing AML information to the Australian number 1262612626.

(iii) CE that incorporates AML functionality may initiate additional SMs containing AML information to the Australian number 1262612626 for the duration of the Emergency Call.

Note: Where CE does initiate multiple additional SMs then the CE could do so at intervals of approximately 30 seconds.

(iv) CE that incorporates AML functionality should provide IMEI and IMSI in the AML SM.

*Compliance with Clause 5.2.2.1(h) should be checked by using the methods described in Clause 6.2.*

(i) Location – AML when roaming outside Australia

CE that incorporates AML functionality **shall not** initiate a SM containing AML information to the Australian number 1262612626 when the CE is roaming outside Australia.

*Compliance with Clause 5.2.2.1(i) should be demonstrated by way of a manufacturer's DoC.*

(j) Location – non-AML technologies

(i) When initiating an IMS emergency session, CE using 3GPP technologies should conform to the requirements to convey its location information for an Emergency Call, using the Geolocation header field and the PIDF location object in the initial SIP INVITE request, as specified in section 5.1.6.8.2 and section 5.1.6.8.3 of ETSI TS 124 229 [24].

(ii) CE using 3GPP technologies that enable support of LTE Positioning Protocol (LPP) should support LPP in accordance with ETSI TS 137 355 [30].

(iii) CE using 3GPP technologies that enable support of Enhanced Cell Identification (ECID) positioning method should support ECID signalling in accordance with ETSI TS 137 355 [30] to provide the CE's location information for an Emergency Call.

*Compliance with Clause 5.2.2.1(j) should be demonstrated by way of a manufacturer's DoC.*

### 5.2.2.2 Special flags and special signalling

#### 5.2.2.2.1 Emergency Service Numbers 000 and 112

CE using 3GPP technologies designed for voice communications **shall** activate the Emergency Call procedure for the ESN 000 in the same manner as it would initiate the Emergency Call procedure for the ESN 112.

Note: This requirement may require the CE, when initiating an Emergency Call to ESN 000, to raise special flags or use special signalling protocols as required by ETSI TS 124 008 [23] that defines the procedure for the initiating of an Emergency Call to the ESN 112.

#### 5.2.2.2.2 Emergency Service Number 106

CE using 3GPP technologies **shall not**—

(a) treat calls to ESN 106 as Emergency Calls; or

(b) activate the Emergency Call procedure for calls to ESN 106.

*Compliance with Clause 5.2.2.2 should be checked by operation and inspection.*

### 5.2.3 Emergency Cell Broadcast (ECB)

#### 5.2.3.1 ECB Receipt

CE **shall** support ECB delivered to the CE via a CBS as defined in ETSI TS 123 041 [22].

*Compliance with Clause 5.2.3.1 should be demonstrated by way of a manufacturer's DoC.*

#### 5.2.3.2 Message length support

CE **shall** support CBS message lengths of a maximum of 1395 characters.

Note: ECB messages are expected to be less than the maximum. In practice, operational controls are to be in place regulating the length of NMS alerts to ensure the optimal use of the NMS. For example, in the US, a maximum of 360 characters of alphanumeric text is specified for WEA(CMAS) ECB messages.

*Compliance with Clause 5.2.3.2 should be demonstrated by way of a manufacturer's DoC.*

#### 5.2.3.3 Multiple language implementation

CE **shall** support multiple language implementations for identical ECB messages as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22].

*Compliance with Clause 5.2.3.3 should be demonstrated by way of a manufacturer's DoC.*

#### 5.2.3.4 ECB Alert Levels

CE **shall** support multiple ECB Alert Levels as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22].

CE **shall** support reception of CBS messages whose Message Identifiers are in the search list and are defined in Clauses 5.2.3.5 to 5.2.3.14 and are stored—

(a) in the CE; or

(b) in the $EF_{CBMI}$, $EF_{CBMID}$ and $EF_{CBMIR}$ files on the SIM.

If the CE has restricted capabilities with respect to the number of Message Identifiers it can search for, the Message Identifiers stored in the SIM **shall** take priority over any stored in the CE.

*Compliance with Clause 5.2.3.4 should be demonstrated by way of a manufacturer's DoC.*

#### 5.2.3.5 ECB Alert Level 1 (NMS Critical Alert)

##### 5.2.3.5.1 General

CE **shall** support ECB EU-Alert Level 1 as defined in ETSI TS 102 900 [14].

##### 5.2.3.5.2 ECB Alert Level 1 Message Identifier

CE **shall** support ECB EU-Alert Level 1 as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22] with Message Identifier 4370 for local language (English) and 4383 for additional language support.

##### 5.2.3.5.3 Alert state

CE **shall** have ECB Alert Level 1 enabled.

##### 5.2.3.5.4 Alert user configuration

CE **shall** be configured to Opt-in for ECB Alert Level 1.

Opt-out selection **shall not** be allowed.

##### 5.2.3.5.5 Presentation of alert

CE **shall** present ECB Alert Level 1 as 'NMS Critical Alert' to the user.

##### 5.2.3.5.6 Audio attention signal

ECB Alert Level 1 **shall** be specified as in FCC Title 47 CFR Part 10 [32], with the following characteristics:

(a) The audio attention signal must have a temporal pattern of one long tone of two (2) seconds, followed by two short tones of one (1) second each, with a half (0.5) second interval between each tone. The entire sequence must be repeated twice with a half (0.5) second interval between each repetition.

(b) For devices that have polyphonic capabilities, the audio attention signal must consist of the fundamental frequencies of 853 Hz and 960 Hz transmitted simultaneously.

(c) For devices with only a monophonic capability, the audio attention signal must be 960 Hz.

##### 5.2.3.5.7 CE audio user configuration

CE **shall** override user configured 'Silent' or 'Do not disturb' setting upon receipt of EU-Alert Level 1 to sound the alert.

*Compliance with Clause 5.2.3.5 should be demonstrated by way of a manufacturer's DoC.*

#### 5.2.3.6 ECB Alert Level 2 (NMS Priority Alert)

##### 5.2.3.6.1 General

CE **shall** support ECB EU-Alert Level 2 as defined in ETSI TS 102 900 [14].

##### 5.2.3.6.2 ECB Alert Level 2 Message Identifier

CE **shall** support ECB EU-Alert Level 2 as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22] with Message Identifier 4371 for local language (English) and 4384 for additional language support.

##### 5.2.3.6.3 Alert state

CE **shall** have ECB Alert Level 2 enabled.

##### 5.2.3.6.4 Alert user configuration

CE **shall** be configured to Opt-in for ECB Alert Level 2.

Opt-out selection **shall** be allowed.

##### 5.2.3.6.5 Presentation of Alert

CE **shall** present ECB Alert Level 2 as 'NMS Priority Alert' to the user.

*Compliance with Clause 5.2.3.6 should be demonstrated by way of a manufacturer's DoC.*

#### 5.2.3.7 Device-Based Geo-Fencing (DBGF)

##### 5.2.3.7.1 General

For CE supporting satellite-based location (GNSS) functionality, but not limited to GNSS functionality, the geofencing trigger message identifier **shall** be supported and enabled.

Note 1: There is no User Interface (UI) setting for the geo-fencing trigger.

Note 2: DBGF is not expected to override the device location user settings. The user settings for location services cannot be activated remotely. If the user has actively disabled location settings on their device, then the device will by default display the NMS alerts without considering the geofencing polygon location information from the network.

##### 5.2.3.7.2 Device-Based Geo-Fencing Message Identifier

CE **shall** support Device-Based Geo-Fencing as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22] with Message Identifier 4400.

*Compliance with Clause 5.2.3.7 should be demonstrated by way of a manufacturer's DoC.*

#### 5.2.3.8 Emergency Cell Broadcast Alert Level 3

This Alert Level is not required to be implemented for the NMS.

#### 5.2.3.9 Emergency Cell Broadcast Alert Level 4

This Alert Level is not required to be implemented for the NMS.

#### 5.2.3.10 Emergency Cell Broadcast Alert Level Amber

This Alert Level is not required to be implemented for the NMS.

#### 5.2.3.11 ECB Alert Level EU-Exercise (Exercise)

##### 5.2.3.11.1 General

CE **shall** support ECB EU-Alert Level EU-Exercise as defined in ETSI TS 102 900 [14].

##### 5.2.3.11.2 ECB Exercise Message Identifier

CE **shall** support ECB EU-Exercise as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22] with Message Identifier 4381 for local language (English) and 4394 for additional language support.

##### 5.2.3.11.3 Alert State

CE **shall** have ECB Alert EU-Exercise enabled.

##### 5.2.3.11.4 Alert user configuration

CE **shall** be configured to Opt-out for ECB Alert EU-Exercise.

Opt-in selection **shall** be allowed.

##### 5.2.3.11.5 Presentation of alert

CE **shall** present ECB Alert EU-Exercise as 'Exercise' to the user.

*Compliance with Clause 5.2.3.11 should be demonstrated by way of a manufacturer's DoC.*

#### 5.2.3.12 ECB Level EU-Monthly Test (Test)

##### 5.2.3.12.1 General

CE **shall** support ECB EU-Alert Level EU-Monthly Test as defined in ETSI TS 102 900 [14].

##### 5.2.3.12.2 ECB Test Message Identifier

CE **shall** support ECB EU-Monthly Test as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22] with Message Identifier 4380 for local language (English) and 4393 for additional language support.

##### 5.2.3.12.3 Alert State

CE **shall** support ECB Alert EU-Monthly Test.

Note: Enablement of ECB Alert EU-Monthly Test is CE implementation specific.

#### 5.2.3.12.4 Alert user configuration

ECB Alert EU-Monthly test can be configurable.

Note: This test is typically not intended to be user configurable. Enablement procedure is CE implementation specific.

#### 5.2.3.12.5 Presentation of Alert

CE **shall** present ECB Monthly Test as 'Test' to the user

*Compliance with Clause 5.2.3.12 should be demonstrated by way of a manufacturer's DoC.*

### 5.2.3.13 ECB Alert Level EU-Reserved (Operator Test)

#### 5.2.3.13.1 General

CE **shall** support ECB EU-Alert Level EU-Reserved as defined in ETSI TS 102 900 [14].

#### 5.2.3.13.2 ECB Operator Test Message Identifier

CE **shall** support ECB EU-Reserved as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22] with Message Identifier 4382 for local language (English) and 4395 for additional language support.

#### 5.2.3.13.3 Alert State

CE **shall** support ECB Alert EU-Reserved.

Note: Enablement of ECB Alert EU-Reserved is CE implementation specific.

#### 5.2.3.13.4 Alert user configuration

ECB Alert EU-Reserved can be configurable.

Note: This test is typically not intended to be user configurable. Enablement procedure is CE implementation specific.

#### 5.2.3.13.5 Presentation of Alert

CE **shall** present ECB Alert EU-Reserved as 'Operator Test' to the user

*Compliance with Clause 5.2.3.13 should be demonstrated by way of a manufacturer's DoC.*

### 5.2.3.14 ECB Alert Level EU-Test (State/Local Test)

#### 5.2.3.14.1 General

CE **shall** support ECB EU-Alert Level EU-Test as defined in ETSI TS 102 900 [14].

#### 5.2.3.14.2 ECB State/Local Test Message Identifier

CE **shall** support ECB EU-Test as defined in ETSI TS 102 900 [14] and ETSI TS 123 041 [22] with Message Identifier 4398 for local language (English) and 4399 for additional language support.

5.2.3.14.3 Alert State

CE **shall** have ECB Alert EU-Test enabled.

5.2.3.14.4 Alert user configuration

CE **shall** be configured to Opt-out for ECB Alert EU-Test

Opt-in selection **shall** be allowed.

5.2.3.14.5 Presentation of alert

CE **shall** present ECB Alert EU-Test as 'State/Local Test' to the user.

*Compliance with Clause 5.2.3.14 should be demonstrated by way of a manufacturer's DoC.*

5.2.3.15 Emergency Cell Broadcast alerting

CE **shall** provide visual and audible alerts for ECB messages in accordance with ETSI TS 102 900 [14] as below:

(a) ECB Alerts **shall** use an appropriate visual and audible indicator for the relevant ECB Alert Level and distinct from any other CE alerts as per ETSI TS 102 900 [14].

(b) ECB Alerting **shall** occur upon receipt of the ECB message without interaction from the user as per ETSI TS 102 900 [14].

(c) ECB Alerts should incorporate accessibility features supported by the CE as per ETSI TS 102 900 [14].

Note: CE should utilise Text-To-Speech if supported by the operating system and hardware to read the contents of the ECB Alert message if the user has enabled the appropriate accessibility feature.

(d) ECB Alerts **shall** persist with visual indicators until the message indication is cancelled by the user, for example, by the user pushing keys, as per ETSI TS 102 900 [14].

(e) ECB Alerts **shall** persist with audible indicators until the message indication is cancelled by the user, for example, by pushing keys), as per ETSI TS 102 900 [14].

(f) ECB Alerts **shall** be stored for later recall by the user.

(g) Alerts can support presentation and use of URL/URI by the user as per ETSI TS 102 900 [14].

*Compliance with Clause 5.2.3.15 should be demonstrated by way of a manufacturer's DoC.*

## 5.3 CE used in connection with a Satellite Service

### 5.3.1 Application

The requirements of Clause 5.3 are applicable to CE connected to or intended for use in connection with a Satellite Service and operating in ECS Access Mode.

### 5.3.2 Emergency call service access

By the user manually entering the digits at the time the connection is required, CE designed for voice communications that incorporates numeric keys for the primary purpose of initiating calls **shall** allow the initiating of an Emergency Call to the ESN 000.

Note 1: Numeric keys include physical buttons and screen-based 'soft' keys found on CE.

Note 2: If numeric keys remain visible under any lock condition (e.g. software or hardware lock), then the requirements of this Clause apply.

Note 3: CE may have means other than numeric keys for call setup, e.g. alphanumeric keys, voice, motion and other non-keyed means. There is no requirement placed on these under Clause 5.3.2 as these are addressed in Clause 5.1.1.

*Compliance with Clause 5.3.2 should be checked using the method described in Clause 6.2.2.*

## 5.4 Provision of power-fail advice

Mains-powered CE designed for voice communications **shall** have a warning notice included in or with the CE documentation, if the CE does not continue to operate for more than 30 minutes after the loss of mains power.

Note 1: Suggested wording for the warning notice is shown below and should also be placed on the outside surface of the CE's packaging.

**Warning**

**This equipment may not work when mains power fails**

Note 2: Suggested placement of the warning notice could be—

(i) either on the outer surface of the packaging of the CE; or

(ii) via a QR code or similar thing, if the relevant link is to information on a website that displays the warning notice prominently.

*Compliance with Clause 5.4 may be checked by inspection.*

## 5.5 Acoustic safety

### 5.5.1 Maximum Sound Pressure Level (SPL)

The maximum RMS Sound Pressure Level (SPL) output for voice communications from the CE **shall** be less than or equal to 120 dBA at the Ear Reference Point (ERP) or the equivalent at the Drum Reference Point (DRP) when any user adjustable receiver volume control is set to maximum and when measured using 'RMS', 'F' or 'Fast' settings of sound level meters as defined in IEC 61672-1 [7] or equivalent short term RMS SPL.

Note 1: The choice of acoustic coupler and artificial ear is to be in accordance with ITU-T Rec. P.57 [12].

Note 2: Conversion between DRP and ERP for narrow band stimuli is to be in accordance with ITU-T Rec. P.57 [12].

Note 3: The requirement in Clause 5.4.1 is based upon the requirements in AS/CA S004 [3]. AS/CA S004 [3] typically applies to CE used for fixed telephony.

Note 4: Refer to ACIF G616 [6] for additional information related to the use of CE for mobile telephony.

### 5.5.2 Recommended Maximum Sound Pressure Levels (SPLs) (informative)

#### 5.5.2.1 General

The RMS Sound Pressure Level (SPL) output for all audible outputs other than voice communications from the CE should be less than or equal to 120 dBA at the Ear Reference Point (ERP) or the equivalent at the Drum Reference Point (DRP) when any user adjustable volume control is set to maximum and when measured using 'RMS', 'F' or 'Fast' settings of sound level meters as defined in IEC 61672-1 [7] or equivalent short term RMS SPL.

Methods to achieve this could include—

(a) an adaptation of the SPL output based on information about the proximity of the CE and the user; or

(b) the use of more than one transducer for production of audible output, with the higher SPL output being produced by a transducer not intended to be placed next to or in an ear.

#### 5.5.2.2 SPL output exceeding 120 dBA

Where the RMS SPL output from the CE exceeds 120 dBA at the ERP or the equivalent at the DRP then there should be control of the initial SPL such as a ramping up of the output so the SPL is—

(a) initially less than or equal to 120 dBA at the Ear Reference Point (ERP) or the equivalent at the Drum Reference Point (DRP);

(b) rises in increments no greater than 6 dB;

(c) rises at a rate not greater than 6 dB/second; and

(d) rises to a maximum within not less than 6 seconds.

Note 1: The choice of acoustic coupler and artificial ear is to be in accordance with ITU-T Rec. P.57 [12].

Note 2: Conversion between DRP and ERP for narrow band stimuli is to be in accordance with ITU-T Rec. P.57 [12].

Note 3: Refer to G616 [6] for additional information related to the use of CE for mobile telephony.

Note 4: These recommendations arise from a balancing of—

(i) a need to protect users from CE from acoustic shock, particularly when the CE is located close to a user's ear;

(ii) the risk of acoustic shock relative to the level of usage of CE (e.g. mobile phones) by the populations; and

(iii) the utility of CE that can produce high SPLs, particularly in a noisy environment when the CE is not located close to the user.

Note 5: Ramping up of an audible output can provide some protection against the risk of acoustic shock by giving the user the opportunity to move the CE away from their ear before the CE produces its maximum SPL.

*Compliance with Clause 5.5 should be checked using the method described in Clause 6.3.*

## 5.6 Telecommunications Device Identifier and security

### 5.6.1 Telecommunications Device Identifier

CE using—

(a) 3GPP technologies; or

(b) OFDMA TDD WMAN technologies

**shall** have a Telecommunications Device Identifier.

*Compliance with Clause 5.6.1 should be demonstrated by way of a manufacturer's DoC and inspection.*

### 5.6.2 3GPP Technologies security

CE using 3GPP technologies excluding CE for which PEI is the equipment identifier **shall** comply with IMEI security requirements of ETSI TS 122 016 [18].

CE using 3GPP technologies for which PEI is the equipment identifier **shall** comply with PEI security requirements of ETSI TS 133 501[28] and IMEI security requirements of ETSI TS 122 016 [18].

*Compliance with Clause 5.6.2 should be demonstrated by way of a manufacturer's DoC.*

### 5.6.3 OFDMA TDD WMAN Technologies security

CE using OFDMA TDD WMAN technologies **shall** comply with Public Key Certification (PKC) security requirements of ITU-T Recommendation X.509 [13].

*Compliance with Clause 5.6.3 should be demonstrated by way of a manufacturer's DoC.*

# 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 Standard are described in Clauses 6.2 and 6.3.

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.

## 6.2 Test calls for Emergency Call Service access

### 6.2.1 Making a test call for CE used in connection with a PMTS

#### 6.2.1.1 Identity modules

Where an Identity Module is present in the CE during testing, the Identity Module should—

(a) be supplied by a Carrier or CSP;

(b) be an active Identity Module;

(c) have the ESN 000 stored in the ECC field; and

(d) be intended for use to access a PMTS operated by a Mobile Carrier.

#### 6.2.1.2 Test configuration for CE operating in ECS Access Mode

The CE and test environment should be configured as required for—

(a) each operating state in Clause 5.2.2 requiring test Emergency calls, including the operating state where no Identity Module is present;

(b) accessing PMTS from each of the Mobile Carriers and confirming Emergency Calls are supported;

Note: At the time of publication, the Mobile Carriers requiring emergency camp-on testing are Telstra, Optus and TPGT.

(c) accessing PMTS from each of the Mobile Carriers and confirming that Emergency Calls are supported via camp-on to each of the Mobile Carriers where the CE does not have an Identity Module;

(d) accessing PMTS from each of the Mobile Carriers and confirming that Emergency Calls are supported via camp-on to each of the Mobile Carriers where the CE has an active Identity Module in accordance with Clause 6.2.1.1;

(e) each technology supported by the CE and PMTS where Emergency Calls are supported including:

(i) E-UTRA connected to an Evolved Packet Core (EPC);

(ii) E-UTRA (master) and NR (secondary) connected to EPC;

(iii) NR connected to 5G Core Network (5GC); and

(iv) a Wi-Fi network connected to EPC/5GC where voice calls can be made; and

(f) no suitable access technology

Note 1: eUICC with no profile installed or enabled is to be considered the same way as no Identity Module is present.

Note 2: For Item (e), if the technology supports a normal voice call, then the same technology should support an emergency call.

Note 3: For Items (e)(i), (e)(ii) and (e)(iii), IMS Emergency Call in normal, as well as camped on a network where only Emergency Calls are possible, are to be tested.

Note 4: Where a CE supports an identify module being active on different types of UICC then the tests defined in 6.2.1.2 should be completed for each type of UICC.

Note 5: The expectation, when there is no suitable access technology, is the ability to initiate an Emergency Call is not prevented.

Note 6: The requirements for testing incorrectly inserted Identity Modules in Clauses 5.2.2.1(b)(ii)(D), and damaged or faulty Identity Modules in Clause 5.2.2.1(b)(ii)(E), do not apply to eUICC identity modules.

Note 7: The tests in this Clause do not apply to devices accessing a PMTS which is solely delivered via a Satellite-Based Facility. For future study and new requirements may be introduced in a future edition.

Note 8: For Emergency calls over Wi-Fi, the CE need to be connected to a PMTS; this implies the presence of a valid Identity Module. Camp-on Emergency Calls for SIMless or invalid Identity Module scenarios are therefore not possible over Wi-Fi.

### 6.2.1.3 Test configuration for Gateway Devices

For Gateway Device test calls, the Gateway Device should be configured as required for—

(a) each operating state in Clause 5.2.2 requiring test calls, including the operating state where no Identity Module is present;

(b) accessing PMTS from each of the Mobile Carriers;

(c) each technology supported by the Gateway Device and by the PMTS including:

(i) E-UTRA connected to EPC;

(ii) E-UTRA (master) and NR (secondary) connected to EPC;

(iii) NR connected to 5GC; and

(iv) a Wi-Fi network connected to EPC/5GC where voice calls can be made; and

(d) no suitable access technology

Note 1: eUICC with no profile installed or enabled is to be considered the same way as no Identity Module is present.

Note 2: For Items (c)(i), (c)(ii) and (c)(iii), IMS Emergency Call in normal, as well as camped on a network where only Emergency Calls are possible, are to be tested.

Note 3: The expectation, when there is no suitable access technology, is the ability to initiate an Emergency Call is not prevented.

Note 4: The requirements for testing incorrectly inserted Identity Modules in Clauses 5.2.2.1(b)(ii)(D), and damaged or faulty Identity Modules in Clause 5.2.2.1(b)(ii)(E), do not apply to eUICC identity modules.

Note 5: The tests in this Clause do not apply to devices accessing a PMTS which is solely delivered via a Satellite-Based Facility. For future study and new requirements may be introduced in a future edition.

For Gateway Device test calls, the corded or wireless handset connected to CE that functions as a Gateway Device should be configured as required for each operating state in 5.2.2.

### 6.2.1.4 Information to record prior to test calls

Prior to initiating test calls the tester should check and record information about—

(a) PMTS supported radio access core network technologies availability in the test environment and its suitability for voice calls;

(b) For CE that support voice calls, the interoperability with a voice telephony service when connected to the PMTS from each mobile carrier; and

(c) Wi-Fi availability in the test environment and its suitability for making voice calls connecting via a core network

Test calls only apply to CE operating in ECS Access Mode.

Note: Test calls are those from Carriers/CSPs, CE suppliers, test laboratories and the ACMA verifying compliance of the CE against the applicable requirements of this Standard.

### 6.2.1.5 Initiating a test call to the ECP for 000 and 112

Test calls for the ESNs should be made to the ECP for 000 and 112 for CE used in connection with a PMTS.

Prior to initiating a test call to an ESN, the tester should record the—

(a) time and date of the Emergency Call(s);

(b) IMSI and IMEI of the CE under test;

(c) MSISDN of the PMTS used by the CE under test; and

(d) for AML compliance information regarding the test location, including:

(i) latitude;

(ii) longitude; and

(iii) service address.

6.2.1.6 Response from the ECP for 000 and 112

If the Emergency Call is supported by the Telecommunications Network supplying the PMTS, successful initiation of an Emergency Call to the ESNs 000 and 112, will be indicated by the connection to either a Recorded Voice Announcement (RVA) or an ECP operator for 000 and 112.

Note: At time of publication, the ECP for 000 and 112 is Telstra Corporation Ltd.

6.2.1.7 Response from network

If—

(a) the Emergency Call is not supported by the Telecommunications Network supplying the PMTS; and

(b) the Telecommunications Network provides a network response back to the CE, then;

successful initiating of an Emergency Call to the ESN will be indicated by the appropriate network response.

An appropriate network response is one which confirms that the CE was able to deliver the appropriate information to the air interface for the initiating of an Emergency Call to the ESN, e.g. call diverts to a network IVR or RVA or to a network operator in the case of a call to 000 or 112.

6.2.1.8 Test call using SIM with ECC field

Test calls to ESNs should be made to the ECP for 000 and 112 for CE used in connection with a PMTS.

The CE should be in both the locked and unlocked states and exclude call cases listed in Clauses 5.2.2.1(b)(i) and (ii).

Insert an active Identity Module supplied by a CSP and attempt dialling of the ESNs 000 and 112. Verify successful test calls to the ECP for 000 and 112.

While the Identity Module remains inserted, perform a third test call to the numbers 106 and 999. Verify that the Identity Module supplied by a CSP prevents the successful initiation of an Emergency Call, however, a normal call will be initiated.

Test calls only apply to CE operating in ECS Access Mode.

Note 1: Test calls are those from Carriers, CE suppliers, test laboratories and the ACMA verifying compliance of the CE against the applicable requirements of this Standard.

Note 2: Identity Modules supplied by a CSP only contain the ESN 000 in the ECC field in accordance with C536[4] requirements and do not contain any other numbers such as 08, 110, 112, 999, 118 and 119.

### 6.2.2 Making a test call for CE used in connection with a Satellite Service

#### 6.2.2.1 Test configuration

Test calls for the ESN 000 should be made to the ECP for 000 and 112 for CE used in connection with a particular Satellite Service.

If the CE requires an Identity Module for normal operation, then the test calls should be made with an active test Identity Module fitted.

The CE should be in the unlocked state.

The PSTN handset or wireless phone connected to CE that functions as a Gateway Device should be in the unlocked state.

Test calls should be made from CE operating in ECS Access Mode.

#### 6.2.2.2 Response from the ECP for 000 and 112

If the Emergency Call is supported by the Telecommunications Network supplying the Satellite Service, successful initiation of an Emergency Call to the ESN will be indicated by the connection of the Emergency Call to either a ECP RVA for 000 and 112 or an ECP operator for 000 and 112 in the case of a call to the ESN 000.

#### 6.2.2.3 Response from network

If the Emergency Call is not supported by the Telecommunications Network supplying the particular Satellite Service and where the Telecommunications Network provides a network response back to the CE, successful initiation of an Emergency Call to the ESN will be indicated by the connection to the appropriate network response. This confirms that the CE was able to deliver the appropriate information to the air interface for the initiation of an Emergency Call to the ESN, e.g. call diverts to a network IVR or network operator in the case of a call to ESN 000.

### 6.2.3 Test call identification

Either—

(a) "This is [Your Name and Company name] making a Triple Zero test call" or

(b) "This is [Your Name and Company name] making a Triple Zero test call; please confirm the phone number displayed is 0XXXXXXXXX?"

announcement should accompany a test call if the call is taken by an operator at the ECP for 000 and 112.

Note 1: The ECP agent for 000 and 112 will follow their procedure to direct the test call to a Test Call Recorded Voice Announcement (RVA).

Note 2: The Test Call RVA will then be played back in a loop for a total duration of 2 minutes, this will allow multiple AML SMs to be sent where supported.

### 6.2.4 AML test call verification

To confirm whether AML data was received by the ECP for 000 and 112 for the successful Emergency Calls from a PMTS, the CE Supplier, Test House or Carrier/CSP should email the ECP for 000 and 112 (esap@team.telstra.com) with the—

(a) phone number/s of the test service used; and

(b) time/date of Emergency Calls.

The ECP for 000 and 112 will confirm back via email the following to the tester—

(a) whether AML data was received via SMS for the Emergency Calls; and

(b) the AML data received from the CE.

### 6.2.5 Test call notice

If more than 50 test calls are planned to be made to the ECP for 000 and 112 within a 24-hour period, then the ECP for 000 and 112 is to be notified in advance of the initiation of the test calls.

Note: Notification to the ECP for 000 and 112 can be via esap@team.telstra.com.

## 6.3 Acoustic Safety

### 6.3.1 Maximum RMS output

The maximum RMS output SPL should be measured using the circuit shown in Figure 1.

Note: There is no test required for instantaneous output levels.

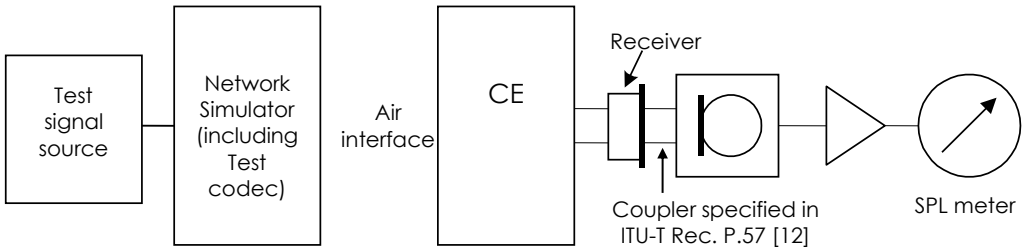


**Figure 1**
**Test circuit for Sound Pressure Level tests**

6.3.2 Volume control

If a volume control can be used with the equipment under test, the volume control should be set to maximum for the tests.

6.3.3 Step test parameters

Measurements over the frequency range and subsequent signal level range should be performed as a series of step tests. The recommended step test parameters as specified in Appendix A are—

(a) Frequency steps to be in one-third octave intervals over the frequency range from 400 Hz to 900 Hz and in one-sixth octave intervals over the frequency range from 900 Hz to 4 kHz

(b) Tone duration: 500 ms

(c) Tone off time between steps: 3 seconds

(d) Level step size: 2 dB

(e) Number of levels: 7

6.3.4 Maximum digital code

The test signals should be applied so that the peaks of the highest level test signals produce the maximum digital code in the network simulator.

# APPENDIX

# A STEPPED PULSED STIMULI FOR TIME DEPENDENT LIMITING TEST

## A1 Introduction

This Appendix defines the test parameters required to meet the requirements of the pulsed tone measurement method specified in Clause 6.3.3.

A series of tone pulses is provided at specific frequencies beginning at a relative low level and increasing over a number of steps up to the maximum level required for the product.

This sequence is repeated at each of seventeen specified test frequencies over the voice band.

Note: Note: A separate compact disc (CD) has been produced to assist in providing the stepped pulse stimuli in order to ensure repeatable test procedures. The CD is available for purchase as a standalone item (as AS/ACIF S004 Supplement 1:2004) and it is provided free of additional charge with printed hardcopies of AS/ACIF S004 [3]. The CD and/or a printed hardcopy of AS/ACIF S004 [3] may be obtained from SAI Global, GPO Box 5420, Sydney NSW 2001 or via http://www.saiglobal.com

The CD contains three test sequences. The test sequence to use for this Standard is the one to suit the requirements of a digital product e.g. a mobile telephone. (Tracks 21 to 40 on the CD correspond to this test sequence.) A series of tone pulses is provided at specific frequencies beginning at a relative low level and increasing over a number of steps up to the maximum level required for the product.

The CD is recorded as a two channel recording. The test sequence is recorded on channel 1. The voice announcements are on channel 2 to advise and prompt the test officer as to which test is being run.

When performing the test, channel 1 is to be connected to a power amplifier capable of generating the required output level as a test signal source (refer to Figure 1) while channel 2 is to be connected to a monitor amplifier and speaker (or headphone) at a suitable listening level.

A sixty second alignment tone is provided at the beginning of the test sequence to set up the amplifier gain to the correct level. This is followed by ten seconds of silence before the test sequence continues beginning at the minimum level.

## A2 Test frequency list

The frequency list in Table A1 is considered to adequately test a product over the voice band, particularly covering the frequencies where an acoustic shock is most likely to be induced, i.e. greater than 1 kHz.

**Table A1**
**Test frequency list**

| Test group | Frequency (Hz) | Test group | Frequency (Hz) |
|---|---|---|---|
| 1 | 410 | 10 | 1728 |
| 2 | 516 | 11 | 1939 |
| 3 | 649 | 12 | 2175 |
| 4 | 818 | 13 | 2441 |
| 5 | 972 | 14 | 2738 |
| 6 | 1090 | 15 | 3073 |
| 7 | 1223 | 16 | 3447 |
| 8 | 1372 | 17 | 3868 |
| 9 | 1540 | | |

## A3 Telephone product tracks

The test sequence for digital products is listed in Table A3, with the alignment tone for the test sequence specified in Table A2 below.

The maximum SPL (A weighted) during each of the sequences is to be recorded.

**Table A2**
**Alignment tones**

| Products track | Frequency (Hz) | Duration (s) | Voice prompt | Action |
|---|---|---|---|---|
| Digital | 1040 | 60 | 'Alignment tone' | Adjust for +3.0 dBm0 at test codec |

Note: The 'Products track' and 'Voice prompt' columns in Table A2 apply to the separate CD referred to in the Note to Appendix A1 (i.e. AS/ACIF S004 Supplement 1:2013).

## Table A3
## Digital products track test

| Test Group 1 | | |
|---|---|---|
| **Level** | **Duration (s)** | **Voice announcement** |
| 0 V | 10 | '410 Hz –9 dBm0' |
| –9 dB | 0.5 | |
| 0 V | 3 | '410 Hz –7 dBm0' |
| –7 dB | 0.5 | |
| 0 V | 3 | '410 Hz –5 dBm0' |
| –5 dB | 0.5 | |
| 0 V | 3 | '410 Hz –3 dBm0' |
| –3 dB | 0.5 | |
| 0 V | 3 | '410 Hz –1 dBm0' |
| –1 dB | 0.5 | |
| 0 V | 3 | '410 Hz +1 dBm0' |
| +1 dB | 0.5 | |
| 0 V | 3 | '410 Hz +3 dBm0' |
| +3 dB | 0.5 | |
| 0 V | 3 | '410 Hz +10 dBm0' |
| +10 dB | 0.5 | |

| Test Groups 2 to16 | | | |
|---|---|---|---|
| **Group** | **Level** | **Duration (s)** | **Voice announcement** |
| 2, 3<br>4, 5<br>6, 7<br>8, 9<br>10, 11<br>12, 13<br>14, 15<br>16 | 0 V | 3 | '516 Hz –9 dBm0' |
| | –9 dB | 0.5 | |
| | This sequence repeated for<br>516 Hz, 649 Hz<br>818 Hz, 972 Hz<br>1090 Hz, 1223 Hz<br>1372 Hz, 1540 Hz<br>1728 Hz, 1939 Hz<br>2175 Hz, 2441 Hz<br>2738 Hz, 3073 Hz<br>3447 Hz | | |
| | 0 V | 3 | '3447 Hz +10 dBm0' |
| | +10 dB | 0.5 | |

| Test Group 17 | | |
|---|---|---|
| **Level** | **Duration (s)** | **Voice announcement** |
| 0 V | 3 | '3868 Hz –9 dBm0' |
| –9 dB | 0.5 | |
| 0 V | 3 | '3868 Hz –7 dBm0' |
| –7 dB | 0.5 | |
| 0 V | 3 | '3868 Hz –5 dBm0' |
| –5 dB | 0.5 | |
| 0 V | 3 | '3868 Hz –3 dBm0' |
| –3 dB | 0.5 | |
| 0 V | 3 | '3868 Hz –1 dBm0' |
| –1 dB | 0.5 | |
| 0 V | 3 | '3868 Hz +1 dBm0' |
| +1 dB | 0.5 | |
| 0 V | 3 | '3868 Hz +3 dBm0' |
| +3 dB | 0.5 | |
| 0 V | 3 | '3868 Hz +10 dBm0' |
| +10 dB | 0.5 | |

Note: The +10 dBm0 signal is provided to ensure that the codec is overloaded and will clip the signal so that it is close to a square wave which will provide more energy than a sine wave.

# APPENDIX

# B ETSI STANDARD REFERENCE (INFORMATIVE)

## B1 Introduction

The following table provides the ETSI Technical Standard clause references to each of the ESN requirements in this Standard. These references have been provided to assist the reader in identifying the source and its relationship to each of the requirements in this Standard.

**Table B1**

**ETSI Technical Standard clause references**

| AS/CA S042.1 requirement | | ETSI Standard requirement |
|---|---|---|
| **5.2.2.1** | **Emergency Service Number** | |
| 5.2.2.1(a) | Firmware | The storage of '000' as the ESN in the CE is specified as a **'shall'** requirement in clause 10.1.1 of ETSI TS 122 101 [20]. |
| | | Identification of '000' as the ESN in the case of the identity module not being present is specified as a **'shall'** requirement in clause 10.1.1 of ETSI TS 122 101 [20]. |
| 5.2.2.1(b) | Mobile Identity | The use of the IMEI/PEI as a mobile identity during the initiation of an Emergency Call in the case of the Identity Module not being present is specified as a **'shall'** requirement in ETSI TS 124 008 [23] (for GSM and UTRA) clause 5.5.1.2.2 of ETSI TS 124 301 [25] (for E-UTRA) and clause 5.5.1.2.2 of ETSI TS 124 501 [26] (for 5G NR). |
| | | The use of the IMEI/PEI as a mobile identity during the initiation of an Emergency Call in the case of the Identity Module being blocked and/or invalidated is specified as a **'shall'** requirement in clause 4.5.1.1 of ETSI TS 124 008 [23] (for GSM and UTRA), clause 5.5.1.2.2 of ETSI TS 124 301 [25] (for E-UTRA) and clause 5.5.1.2.2 of ETSI TS 124 501 [26] (for 5G NR). |
| | | The use of the IMEI/PEI as a mobile identity during the initiation of an Emergency Call in the case of IMS Emergency session set up without emergency registration is specified as a **'shall'** requirement in clause 5.1.6.8.2 of ETSI TS 124 229 [24]. |

| AS/CA S042.1 requirement | | ETSI Standard requirement |
|---|---|---|
| | | The use of IMSI/TMSI as a mobile identity during the initiation of an Emergency Call in the case of the Identity Module being present is specified as a **'shall'** requirement in clause 4.5.1.1 of ETSI TS 124 008 [23] (for GSM and UTRA). The use of IMSI/GUTI as a mobile identity during the initiation of an Emergency Call in the case of the Identity Module being present is specified as a 'shall' requirement in clause 5.5.1.2.2 of ETSI TS 124 301 [25] (for E-UTRA). The use of SUCI/5G-GUTI as a mobile identity during the initiation of an Emergency Call in the case of the Identity Module being present is specified as a 'shall' requirement in clause 5.5.1.2.2 of ETSI TS 124 501 [26] (for 5G NR). The use of IMSI/SUCI as a mobile identity during the initiation of an Emergency Call in the case of the Identity Module being present (IMS Emergency session set up within an emergency or non- emergency registration) is specified as a **'shall'** requirement in clauses 5.1.6.8.3 and 5.1.6.8.4 of ETSI TS 124 229 [24]. |
| 5.2.2.1(c) | ECC field | The requirement to read the ECC field on the identity module and apply '000' (if stored in the ECC field) as an Emergency Service Number is specified as a **'shall'** requirement in clause 10.1.1 of ETSI TS 122 101 [20] and clause 7.3.1.1 of ETSI TS 131 111 [27]. |
| 5.2.2.1(d) | Numeric keys | User input mechanisms to initiate Emergency Call is outside the scope of the 3GPP/ETSI Standards. |
| 5.2.2.1(e) | Emergency Call safeguard | User input mechanisms to initiate Emergency Call is outside the scope of the 3GPP/ETSI Standards. |
| 5.2.2.1(f) | Locks | The initiation of an Emergency Call is specified as a **'shall'** requirement in clause 10.1 of ETSI TS 122 101 [20], independent of the CE state. |
| **5.2.2.2** | **Special flags and special signalling** | |
| 5.2.2.2.1 | ESNs 000 and 112 | The identification of '000' as an ESN in the case of the Identity Module not being present or stored as an ESN in the ECC field is specified as a **'shall'** requirement in clause 10.1.1 of ETSI TS 122 101 [20]. In the above case, calls to '000' must be initiated as an Emergency Call, specified as a **'shall'** requirement in clause 4.5.1.1 of ETSI TS 124 008 [23] (for GSM and UTRA) and clause 5.5.1.1 of ETSI TS 124 301 [25] (for E-UTRA). |

# APPENDIX

# C NMS ALERTS AND GEOFENCING (INFORMATIVE)

The table below provides an informative summary of the NMS Alerts and the Geo-fencing Trigger used in the NMS. Refer to Clause 5.2.3 for the requirements for Emergency Cell Broadcast (ECB) for CE.

| EU-Alert | NMS Alert level presented to the user | Message Identifiers | | NMS interaction with CE |
|---|---|---|---|---|
| | | Local Language | Additional Languages | |
| EU-Alert Level 1 | **NMS Critical Alert** | 4370 | 4383 | Alert enabled.<br>Not configurable by user. Opt-out by the user is not allowed.<br>NMS Critical Alert status (alert enabled but not able to be configured by the user) may be visible to the user in the CE menu.<br>Audible to the user. The 'Silent' & 'do not disturb' settings are inactive. |
| EU-Alert Level 2 | **NMS Priority Alert** | 4371 | 4384 | Alert enabled.<br>Configured to be opt-in. Opt-out by the user is allowed |
| EU-Alert Level 3 | - | 4373 | 4386 | *UNUSED* |
| EU-Alert Level 4 | - | 4396 | 4397 | *UNUSED* |
| EU-Amber | - | 4379 | 4392 | *UNUSED* |
| EU-Exercise | **Exercise** | 4381 | 4394 | Alert enabled.<br>Configured to be opt-out. Opt-in by the user is allowed.<br>The audio attention signal is configurable.<br>Message type listed *For Further Study* in ETSI TS 102 900 [14]. |
| EU-Monthly Test | **Test** | 4380 | 4393 | Alert supported.<br>Can be configurable.<br>This test is typically not intended to be user configurable. Enablement procedure is CE implementation specific.<br>The audio attention signal is configurable by the user. |

| EU-Alert | NMS Alert level presented to the user | Message Identifiers | | NMS interaction with CE |
|---|---|---|---|---|
| | | Local Language | Additional Languages | |
| EU-Reserved | **Operator Test** | 4382 | 4395 | Alert supported.<br>Can be configurable.<br>This test is typically not intended to be user configurable. Enablement is CE implementation specific.<br>The audio attention signal is configurable. |
| EU-Test | **State/Local Test** | 4398 | 4399 | Alert enabled.<br>Configured to be opt-out. Opt-in by the user is allowed.<br>The audio attention signal is configurable. |
| EU-GEO-Fencing trigger message | **Geo-fencing Trigger** | 4400 | | Message Identifier supported and enabled.<br>No User Interface (UI) setting for the geo-fencing trigger. |

# BIBLIOGRAPHY

This bibliography contains information about documents referred to in notes and informative appendices in the Standard. Further information on the listed documents, including how to obtain copies, can be found on the following internet sites:

www.iec.ch
www.saiglobal.com
www.standards.org.au

# 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 |
| Cisco Systems | Voting |
| Comtest Laboratories | Voting |
| EchoStar Global | Voting |
| Google | Voting |
| Motorola Mobility Australia | Voting |
| Omnispace Australia | Voting |
| nbn | Voting |
| Optus | Voting |
| Samsung | Voting |
| Telstra | Voting |
| TPG Telecom | Voting |

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

HMD Global resigned from the Working Committee during the course of the project.

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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