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      (ii) inaccuracy or inappropriateness of this Standard; or
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FOREWORD

General

This Standard was prepared by the ACIF Working Committee CECRP/WC6 on Digital Standards for Customer Equipment. It is one of a series of Telecommunication Standards developed under the Memorandum of Understanding between the Australian Communications Authority and the Australian Communications Industry Forum.

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

This Standard is based on the Australian Communications Authority ACA TS 038 — 1997 Requirements for ISDN Primary Rate Access Interface.

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.

It should be noted that some Customer Equipment (CE) may require demonstration of compliance with requirements in other Standards.

Applicable electrical safety Standards and Electromagnetic Compatibility (EMC) Standards may apply under Commonwealth or State laws, or both.

Intellectual property rights

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

Standards revision

Australian Standards developed by the Australian Communications Industry Forum (AS/ACIF Standards) are updated, according to the needs of the industry, by amendments or revision. Users of AS/ACIF Standards should make sure that they possess the latest amendments or editions. Representations concerning the need for a change to this AS/ACIF Standard should be addressed to:

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

Regulatory notice

This notice is to advise that this Standard is subject to regulatory adoption by the Australian Communications Authority (ACA) under Commonwealth Law.
The ACA is a Federal Government body with statutory powers to impose requirements concerning telecommunications Customer Equipment and Customer Cabling.

The ACA requires Australian manufacturers and importers of specified items of Customer Equipment and Customer Cabling to establish compliance with Standards such as this. Items are required to be labelled to the applicable labelling notices.

Details on current compliance arrangements can be obtained from the ACA website at http://www.aca.gov.au or by contacting the ACA below at:

Australian Communications 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
# TABLE OF CONTENTS

## 1 INTERPRETATION
- 1.1 Categories of requirements
- 1.2 Compliance statements
- 1.3 Definitions, expressions and terms
- 1.4 Notes
- 1.5 References
- 1.6 Units and symbols

## 2 SCOPE

## 3 REFERENCES

## 4 ABBREVIATIONS AND DEFINITIONS
- 4.1 Abbreviations
- 4.2 Definitions
  - 4.2.1 Carrier
  - 4.2.2 Customer Equipment (CE)
  - 4.2.3 Data Link Layer (Layer 2)
  - 4.2.4 Facility
  - 4.2.5 Integrated Services Digital Network (ISDN)
  - 4.2.6 Network Layer (Layer 3)
  - 4.2.7 Physical Layer (Layer 1)
  - 4.2.8 Telecommunications Network

## 5 REQUIREMENTS
- 5.1 General
  - 5.1.1 Fail-safe operation
  - 5.1.2 Emergency services access
- 5.2 Physical Layer (Layer 1)
- 5.3 Data Link Layer (Layer 2)
  - 5.3.1 General
  - 5.3.2 ITAAB Advisory Note
- 5.4 Network Layer (Layer 3)
  - 5.4.1 General
  - 5.4.2 Variation/additional requirements

## 6 TESTING
- 6.1 General
- 6.2 Standard test conditions
- 6.3 Fail-safe operation
- 6.4 Emergency calling
- 6.5 Physical Layer (Layer 1)
- 6.6 Data Link Layer (Layer 2)
- 6.7 Network Layer (Layer 3)
  - 6.7.1 General
  - 6.7.2 Variation/additional tests
PARTICIPANTS

The ACIF Working Committee that developed this Standard consisted of the following organisations:

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Communications Authority</td>
<td>Non-voting</td>
</tr>
<tr>
<td>Alcatel</td>
<td>Voting</td>
</tr>
<tr>
<td>Australian Telecommunications Industry Association</td>
<td>Voting</td>
</tr>
<tr>
<td>Comtest Laboratories</td>
<td>Voting</td>
</tr>
<tr>
<td>Envision Communications</td>
<td>Voting</td>
</tr>
<tr>
<td>Ericsson</td>
<td>Voting</td>
</tr>
<tr>
<td>Lucent Technologies</td>
<td>Voting</td>
</tr>
<tr>
<td>NEC Australia</td>
<td>Voting</td>
</tr>
<tr>
<td>Nortel</td>
<td>Voting</td>
</tr>
<tr>
<td>Siemens</td>
<td>Voting</td>
</tr>
<tr>
<td>Telstra</td>
<td>Voting</td>
</tr>
</tbody>
</table>

Mike Johns of ACIF provided project management support.
1 INTERPRETATION

1.1 **Categories of requirements**

This Standard contains mandatory requirements as well as provisions that are recommended 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**

1.5.1 Applicable editions (or versions) of other documents referred to in this Standard are referenced documents and are specified in Section 3: REFERENCES.

1.5.2 If a referenced document refers to another document, the other document is a sub-referenced document.

1.5.3 Where the edition (or version) of the sub-referenced document is uniquely identified in the reference document, then that edition (or version) applies.

1.5.4 Where the edition (or version) of the sub-referenced document is not uniquely identified in the reference document, then the applicable edition (or version) of a legislated document is that which is current at the date the reference document is legislated under the applicable regulatory framework or otherwise comes into effect, or for a non-legislated document, the date upon which the document is published by the relevant standards organisation.

1.5.5 A number in square brackets ‘[ ]’ refers to a document listed in Section 3: REFERENCES.

1.5.6 In the event of a discrepancy between this Standard and a referenced or sub-referenced document, this Standard shall take precedence.

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 [2].
2 SCOPE

2.1 This Standard specifies the technical conditions and performance requirements, at the Physical, Data Link and Network Layers (Layers 1, 2 and 3), for CE that is intended for connection to an ETSI Integrated Services Digital Network (ISDN) Primary Rate Access Digital Subscriber Signalling No. 1 (DDS 1) interface for the purpose of receiving information from, or transmitting information to, the ISDN at the T reference point.

2.2 CE is not excluded from the scope of this Standard by reason only that it is capable of performing functions additional to those listed above.

2.3 For additional technical requirements applying to CE, this Standard should be read in conjunction with those ACA Technical Standards and other documents listed in Clause 3: REFERENCES of this Standard.

2.4 Where CE is also intended to connect to the ISDN Primary Rate Access services based on ACA Technical Standard 014 [1], then CE is to also meet the requirements specified in ACA Technical Standard 014 [1].
# 3 REFERENCES

<table>
<thead>
<tr>
<th>Publication</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACA Technical Standards</strong></td>
<td></td>
</tr>
<tr>
<td>[1] Technical Standard 014</td>
<td>General Requirements for Customer Equipment Connected to an ISDN Primary Rate Interface</td>
</tr>
<tr>
<td><strong>Australian Standards</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ITU–T Recommendations</strong></td>
<td></td>
</tr>
<tr>
<td><strong>European Commission</strong></td>
<td></td>
</tr>
<tr>
<td><strong>European Telecommunications Standards Institute (ETSI)</strong></td>
<td></td>
</tr>
<tr>
<td>[5] ETSI EN 300 089: 1992</td>
<td>Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service—Service description</td>
</tr>
<tr>
<td>[6] ETSI EN 300 090: 2000</td>
<td>Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service—Service description</td>
</tr>
<tr>
<td>[7] ETSI EN 300 092-1: 2001</td>
<td>Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service Digital Subscriber Signalling System No. one (DSS 1) protocol</td>
</tr>
<tr>
<td>[8] ETSI EN 300 093-1: 1998</td>
<td>Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service—Service description</td>
</tr>
<tr>
<td>[9] ETSI EN 300 128: 1992</td>
<td>Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service Digital Subscriber Signalling System No. one (DSS 1) protocol, Part 1: Protocol specification</td>
</tr>
<tr>
<td>Advisory Note</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>055:1998</td>
<td>Value of the state used in STATUS message</td>
</tr>
<tr>
<td>066</td>
<td>Test case selection to be performed for Basic Access and for Primary Rate Access for layers 2 and 3</td>
</tr>
<tr>
<td>067</td>
<td>Testing to be performed for Primary Rate Access layer 1</td>
</tr>
<tr>
<td>068</td>
<td>CRC processing and generation of CRC error reports: Monitoring contiguous E bits</td>
</tr>
<tr>
<td>070</td>
<td>CRC processing Test Procedure change</td>
</tr>
<tr>
<td>072:1998</td>
<td>Requirements to EURO-ISDN primary rate access terminal equipment capable of handling only incoming or only outgoing calls</td>
</tr>
<tr>
<td>075</td>
<td>Approval of TE’s capable of automatic inter-working between equipment with and without CRC-4 capability</td>
</tr>
<tr>
<td>080</td>
<td>Use of preferred/exclusive bit in the RESTART ACK PDU in TC19003</td>
</tr>
<tr>
<td>082</td>
<td>Connection of the simulator to the IUT</td>
</tr>
<tr>
<td>083</td>
<td>Layer 3 default DF69901</td>
</tr>
<tr>
<td>084</td>
<td>Layer 3 response time in layer 2 tests</td>
</tr>
<tr>
<td>085</td>
<td>Information element checking in layer 3 TC20002</td>
</tr>
<tr>
<td>086</td>
<td>Layer 2 test case TC27031</td>
</tr>
<tr>
<td>087:1998</td>
<td>Handling of IUT’s supporting En-bloc sending without using the Sending Complete IE, or supporting more than one dialling mode</td>
</tr>
<tr>
<td>088</td>
<td>Test method for TBR 4 Clause B.3.2 - Immunity to attenuation and reflections</td>
</tr>
<tr>
<td>090</td>
<td>CRC processing Test Procedure Change</td>
</tr>
<tr>
<td>092</td>
<td>Incidental non-compliances and unexpected PDUs</td>
</tr>
<tr>
<td>114</td>
<td>Clarification of the term “Mains Powered”, used in the TBR-RT’s for selection of Protection tests</td>
</tr>
<tr>
<td>123</td>
<td>Problems in layer 2 preambles for terminal equipment unstable in state 4</td>
</tr>
<tr>
<td>Additional References</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>[31] TBR 004</td>
<td>Technical Basis for Regulation TBR 004 November 1995, Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN primary access</td>
</tr>
<tr>
<td>[32] TBR 004/A1</td>
<td>Technical Basis for Regulation TBR 004 Amendment A1 December 1997, Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN primary access</td>
</tr>
</tbody>
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4 ABBREVIATIONS AND DEFINITIONS

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

4.1 Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACA</td>
<td>Australian Communications Authority</td>
</tr>
<tr>
<td>ACIF</td>
<td>Australian Communications Industry Forum</td>
</tr>
<tr>
<td>AS</td>
<td>Australian Standard</td>
</tr>
<tr>
<td>CE</td>
<td>Customer Equipment</td>
</tr>
<tr>
<td>CLI</td>
<td>Calling Line Identification</td>
</tr>
<tr>
<td>CLIP</td>
<td>Calling Line Identification Presentation</td>
</tr>
<tr>
<td>CLIR</td>
<td>Calling Line Identification Restriction</td>
</tr>
<tr>
<td>CTR</td>
<td>Common Technical Regulations</td>
</tr>
<tr>
<td>DSS 1</td>
<td>Digital Subscriber Signalling No. 1</td>
</tr>
<tr>
<td>DUT</td>
<td>Device Under Test</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
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<tr>
<td>EMC</td>
<td>Electromagnetic Compatibility</td>
</tr>
<tr>
<td>ETSI</td>
<td>European Telecommunications Standards Institute</td>
</tr>
<tr>
<td>IA5</td>
<td>International Alphabet No. 5</td>
</tr>
<tr>
<td>IE</td>
<td>Information Element</td>
</tr>
<tr>
<td>ISDN</td>
<td>Integrated Services Digital Network</td>
</tr>
<tr>
<td>ITAAB</td>
<td>ISDN Type Approval Advisory Board</td>
</tr>
<tr>
<td>MCID</td>
<td>Malicious Call IDentification</td>
</tr>
<tr>
<td>SI</td>
<td>International System</td>
</tr>
<tr>
<td>TN</td>
<td>Telecommunications Network</td>
</tr>
<tr>
<td>TTCN</td>
<td>Tree and Tabular Combined Notation</td>
</tr>
</tbody>
</table>

4.2 Definitions

4.2.1 Carrier

Refer to the *Telecommunications Act 1997*.

4.2.2 Customer Equipment (CE)

Refer to the *Telecommunications Act 1997*.

4.2.3 Data Link Layer (Layer 2)

Layer 2 refers to the Data Link Layer as defined by the OSI Reference Model specified in ITU-T Rec. X.200 [3].

Note: The term ‘Data Link Layer’ is used to represent ‘Layer 2’. These terms are used interchangeably.

4.2.4 Facility

Refer to Section 374(2) of the *Telecommunications Act 1997*.
4.2.5 Integrated Services Digital Network (ISDN)

A digital network in which the same digital switches and digital paths are used to establish connections for different services, for example, telephony, data.

4.2.6 Network Layer (Layer 3)

Layer 3 refers to the Network Layer as defined by the OSI Reference Model specified in ITU-T Rec. X.200 [3].

Note: The term ‘Network Layer’ is used to represent ‘Layer 3’. These terms are used interchangeably.

4.2.7 Physical Layer (Layer 1)

Layer 1 refers to the Physical Layer as defined by the OSI Reference Model specified in ITU-T Rec. X.200 [3].

Note: The term ‘Physical Layer’ is used to represent ‘Layer 1’. These terms are used interchangeably.

4.2.8 Telecommunications Network

Refer to Section 374(1) of the *Telecommunications Act 1997*. 
5 REQUIREMENTS

5.1 General

5.1.1 Fail-safe operation

5.1.1.1 CE shall not cause harm or damage to a Telecommunications Network or Facility if any of the following events, or a consequential event, occurs:

(a) Failure of any single mechanical or electrical component in the CE.
(b) Failure of any power supply (including AC mains voltage and local battery) to the CE.
(c) Incorrect manual operation of the CE.

5.1.1.2 CE should not cause harm or damage to a Telecommunications Network or Facility when CE is operated outside the range of operating voltage and environmental conditions specified by the manufacturer.

5.1.1.3 When the battery voltage of battery-powered CE varies, the CE shall fail safe before causing any harm to a Telecommunications Network or Facility.

Note: This Clause is intended to preclude out-of-specification operation, due to battery discharge, when such operation threatens network integrity.

Compliance with Clause 5.1.1 should be checked by using the methods described in Clause 6.3.

5.1.2 Emergency services access

5.1.2.1 CE capable of establishing speech circuits shall support emergency number ‘000’ and ‘106’ dialling.

5.1.2.2 CE capable of establishing speech circuits, should not support barring of access to emergency number ‘000’ and ‘106’.

5.1.2.3 Mains powered CE capable of establishing speech circuits, should continue to support emergency number ‘000’ and ‘106’ dialling for at least 30 minutes following loss of mains power.

Note: CE that does not continue to support emergency dialling after loss of mains power, should include in the accompanying documentation a warning notice. A suggested wording for such a warning notice is as follows:

Warning
This equipment will be inoperable when mains power fails

Compliance with Clause 5.1.2 should be checked by using the methods described in Clause 6.4.

5.2 Physical Layer (Layer 1)

5.2.1 General

CE shall comply with the Layer 1 requirements of the Common Technical Regulation CTR004 (Am1) [4].


Compliance with Clause 5.2 should be checked by using the methods described in Clause 6.5.
5.2.2 ITAAB Advisory Note

Where applicable, the CE shall comply with the requirements specified in ITAAB Advisory Note 072 [17].

Compliance with Clause 5.2.2 should be checked by using the methods described in Clause 6.5.

5.3 Data Link Layer (Layer 2)

5.3.1 General

CE shall comply with the Layer 2 requirements of the Common Technical Regulation CTR004 (Am1) [4].


Compliance with Clause 5.3 should be checked by using the methods described in Clause 6.6.

5.3.2 ITAAB Advisory Note

Where applicable, the CE shall comply with the requirements specified in ITAAB Advisory Note 072 [17].

Compliance with Clause 5.3.2 should be checked by using the methods described in Clause 6.6.

5.4 Network Layer (Layer 3)

5.4.1 General

CE shall comply with the Layer 3 requirements of the Common Technical Regulation CTR004 (Am1) [4].


Compliance with Clause 5.4.1 should be checked by using the methods described in Clause 6.7.1.

5.4.2 Variation/additional requirements

Variation and additions to the requirements specified in Clause 5.4.1 are set out in Clauses 5.4.2.1 to 5.4.2.5.

5.4.2.1 Malicious Call IDentification (MCID)

The capability of supporting the Malicious Call IDentification (MCID) supplementary service for speech and 3.1 kHz audio bearer services is optional.

Note 1: ETSI Functional Procedures are subject to carrier or carriage service provider availability.

Note 2: Alternate carrier or carriage service provider specific provisions may be used to identify a malicious call.

Compliance with Clause 5.4.2.1 should be checked by using the methods described in Clause 6.7.2.2.
5.4.2.2 Calling Line Identification Restriction (CLIR)

5.4.2.2.1 Calling Line Identification Restriction (CLIR) procedures provide the Calling Party with the ability to restrict presentation of the Calling Party’s ISDN number and subaddress to the called party.

5.4.2.2.2 CLIR is supported as two user subscription options in the Telecommunication Networks. These options are ‘Normally Present’ and ‘Normally Restrict’. Both options can be controlled on a call by call basis, overriding the network default. ETSI define these modes as the following:

(a) ‘Temporary Mode with default of presentation not restricted’ (Temporary Mode 1).
(b) ‘Temporary Mode with default of presentation restricted’ (Temporary Mode 2).

5.4.2.2.3 The capability of supporting CLIR supplementary service is optional, however if supported, the CE shall support either Temporary Mode 1 or 2, or both variants, as described below:

(a) Temporary Mode 1

Upon invocation of CLIR, CE shall send an indication to the network, advising the network to restrict presentation on a per call basis (i.e. CE action is required for each call to invoke the service).

(b) Temporary Mode 2

Upon invocation of CLIR, CE shall send an indication to the network, advising the network to allow presentation on a per call basis (i.e. CE action is required for each call to invoke the service).

5.4.2.2.4 If either Temporary Mode 1 or Temporary Mode 2 is supported by CE, the CE shall provide Functional procedures to allow restriction of CLI on a per call basis in accordance with the following ETSI specifications:

(a) EN 300 090 [6] (Stage 1).
(b) EN 300 093-1 [8] (Stage 3).

Compliance with Clause 5.4.2.2 should be checked by using the methods described in Clause 6.7.2.3.

5.4.2.3 Calling Line Identification Presentation (CLIP)

5.4.2.3.1 Calling Line Identification Presentation (CLIP) procedures provide the called party with the possibility of receiving the Calling Party identity.

5.4.2.3.2 Where CE is capable of supporting CLIP, CE shall comply with CLIP requirements specified in following ETSI specifications:

(a) EN 300 089 [5] (Stage 1).
(b) EN 300 092-1 [7] (Stage 3).

Note 1: Some network carriers or carriage service provider may not support the CLIP supplementary service.

Note 2: If the Calling Party number is not available at the destination interface or only partial CLI is available, the ‘Not Available due to Interworking’ codepoint will be sent in the Calling Party Number IE, without any address digits.

Note 3: If the CLI is restricted from presentation (e.g. Calling Party activates CLIR or Calling Party is connected to an exchange or network which does not have CLIR capability) then the ‘Presentation Restricted’ codepoint will be sent in the Calling Party Number IE.

Note 4: The number formats will be in accordance with the individual carrier or carriage service provider specifications.
Compliance with Clause 5.4.2.3 should be checked by using the methods described in Clause 6.7.2.4.

5.4.2.4 ITAAB Advisory Note

Where applicable, the CE shall comply with the requirements specified in ITAAB Advisory Notes 055 [12], 072 [17] and 087 [25].

Compliance with Clause 5.4.2.4 should be checked by using the methods described in Clause 6.7.

5.4.2.5 Initiation of automatic repeated outgoing call attempts

5.4.2.5.1 CE shall provide a minimum off-line period of 2 seconds between successive automatically initiated calls from any channel(s) on the interface to the required number.

5.4.2.5.2 In any 30 minute period, a CE shall not automatically initiate more than ten calls from any channel(s) on the interface to any single called party number, unless a call is successful (i.e. a CONNECT message is received), in which case a new 30 minute period will commence when the next automatically initiated call attempt is made from any channel(s) on the interface to the same required number.

Compliance with Clause 5.4.2.5 should be checked by using the methods described in Clause 6.7.2.5.
6 TESTING

6.1 General

6.1.1 Compliance with all mandatory requirements applicable to the CE as specified in the Requirements Clauses is to be verified. This verification may be through direct measurements, modelling and analysis, or inspection.

6.1.2 Methods for demonstrating compliance of CE with Requirements Clauses specified in this Standard are described in Clauses 6.2 to 6.7. 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 Standard test conditions

6.2.1 Unless this Standard provides otherwise, testing for compliance with this Standard should be conducted at the nominal supply voltage of the CE and within the following ranges of atmospheric conditions:

(a) An ambient temperature in the range of 15°C to 25°C inclusive.
(b) A relative humidity in the range of 30% to 75% inclusive.
(c) An air pressure in the range of 86 kPa to 106 kPa inclusive.

6.2.2 Where elements in a test circuit are variable, the test should be carried out over the indicated range for that element.

6.2.3 Unless indicated elsewhere within this Standard, the accuracy level of all measurements should be better than ±2% for voltage and current, ±0.25% for frequency and ±0.5% for time.

6.2.4 Unless indicated elsewhere within this Standard for an individual test, all component values in the test configuration should have a tolerance of—

(a) ±1% for resistance;
(b) ±1% for capacitance; and
(c) –0%, +25% for inductors.

6.3 Fail-safe operation

Compliance with the requirements of fail-safe operation specified in Clause 5.1.1 should be checked by operation and inspection.

6.4 Emergency calling

Compliance with the Emergency Calling requirements specified in Clause 5.1.2 should be checked by operation and inspection.

6.5 Physical Layer (Layer 1)

Compliance with the requirements of Physical Layer (Layer 1) specified in Clause 5.2 should be demonstrated in accordance with the testing requirements specified in the Common Technical Regulation CTR004 (Am1) [4] and the testing requirements specified in ITAAB Advisory Notes 067 [14], 068 [15], 070 [16], 072 [17], 075 [18], 082 [20], 105 [26], 107 [27], 110 [28] and 114 [29].

6.6 Data Link Layer (Layer 2)

Compliance with the requirements of Data Link Layer (Layer 2) specified in Clause 5.3 should be demonstrated in accordance with the testing requirements specified in the Common Technical Regulation CTR004 (Am1) [4] and the testing requirements specified in ITAAB Advisory Notes 066 [13], 072 [17], 084 [22], 086 [24], 110 [28] and 123 [30].


6.7 Network Layer (Layer 3)

6.7.1 General

6.7.1.1 Compliance with the requirements of Network Layer (Layer 3) specified in Clause 5.4 should be demonstrated in accordance with the testing requirements specified in the Common Technical Regulation CTR004 (Am1) [4] and the testing requirements specified in ITAAB Advisory Notes 055 [12], 066 [13], 072 [17], 080 [19], 083 [21], 085 [23], 087 [25] and 110 [28].


6.7.1.2 Any variations or additional testing requirements specified in Clause 6.7.2 are to be complied with.

6.7.2 Variation/additional tests

6.7.2.1 General

In addition to the tests specified in Clause 6.7.1, the CE should comply with the test requirements specified in Clauses 6.7.2.2, 6.7.2.3, 6.7.2.4 and 6.7.2.5.

6.7.2.2 Malicious Call IDentification (MCID) testing

If supported, compliance with the requirements of Malicious Call IDentification (MCID) using functional procedures as specified in EN 300 128 [9] and EN 300 130-1 [10] should be demonstrated in accordance with test methods specified in EN 300 130-3 [11].

6.7.2.3 Calling Line Identification Restriction (CLIR) testing

6.7.2.3.1 If supported, compliance with the requirements of Calling Line Identification Restriction (CLIR) specified in Clause 5.4.2.2 should be demonstrated in accordance with the procedures in Clauses 6.7.2.3.2 and 6.7.2.3.3.

6.7.2.3.2 CE should be tested to confirm CLIR supplementary service requirements by conducting the following procedure:

(a) From the DUT initiate a call to the test equipment with the CLIR Temporary Mode 1 service invoked for that call.

(b) Clear the call attempt down.

(c) Initiate a second call to the test equipment, this time without attempting to restrict CLI presentation.

(d) Clear the call attempt down.

(e) From the DUT, initiate a call to the test equipment with the CLIR Temporary Mode 2 service invoked for that call.
6.7.2.3.3 Verify the following:

(a) A SETUP message with a Calling Party Number IE with the Presentation Indicator set to ‘Presentation Restricted’ is initiated by the procedure described in Clause 6.7.2.3.2(a).

(b) In accordance with the procedure described in Clause 6.7.2.3.2(c), a SETUP message is initiated with any of the following:

(i) No Calling Party Number IE.

(ii) A Calling Party Number IE with the Presentation Indicator set to ‘Presentation Allowed’.

(iii) A Calling Party Number IE without optional octet 3a included.

(c) in accordance with procedures described in Clause 6.7.2.3.2(e), a SETUP message is initiated and includes a Calling Party Number IE with the Presentation Indicator set to ‘Presentation allowed’.

6.7.2.4 Calling Line Identification Presentation (CLIP) testing

Compliance with the requirements of Calling Line Identification Presentation (CLIP) specified in Clause 5.4.2.3 should be demonstrated in accordance with the testing requirements specified the Common Technical Regulation CTR004 (Am1) [4].

6.7.2.5 Initiation of repeated outgoing call attempts

Compliance with the requirements of Initiation of Repeated Outgoing Call Attempts specified in Clause 5.4.2.5 should be checked by operation and inspection.
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