Australian Standard — Requirements for ISDN Basic Access Interface

This Standard was issued in draft form for public comment as DR AS/ACIF S031.

First published as AS/ACIF S031:1999.

This Standard was gazetted on 12 September 2001 and commenced on that day.

ISBN 1 74000 156 7

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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 031 — 1997 Requirements for ISDN Basic 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
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(EMC) Standards may apply under Commonwealth or State laws, or both.

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Equipment which is manufactured to comply with this Standard may
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The Project Manager
Customer Equipment and Cable Reference Panel
The Australian Communications Industry Forum
PO Box 444
Milsons Point NSW 1565

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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
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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 [3].
2 SCOPE

2.1 This Standard specifies the technical conditions and performance requirements for certain Customer Equipment (CE) at the Physical, Data Link and Network Layers (Layers 1, 2 and 3) when connected to an Integrated Services Digital Network (ISDN) Basic Access interface at the S/T reference point.

2.2 The equipment covered by this Standard is all CE that is intended for connection to an Integrated Services Digital Network (ISDN) Basic Access for the purpose of receiving information from, or transmitting information to, the ISDN.

2.3 This Standard applies to the following types of ISDN:

(a) ETSI Standards based ISDN Basic Access.

(b) AUSTEL Technical Standard 013 [1][2] based ISDN Basic Access.

2.4 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.

2.5 For additional technical requirements applying to a CE, this Standard should be read in conjunction with those ACA Technical Standards and other documents listed in Clause 3: REFERENCES of this Standard.
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| [6] ETSI EN 300 089:1992 | Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service—Service description |
| [7] ETSI EN 300 090:2000 | Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service—Service description |
| [8] ETSI EN 300 092-1:2001 | Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service Digital Subscriber Signalling System No. one (DSS 1) protocol |
| [9] ETSI EN 300 093-1:1998 | Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service Digital Subscriber Signalling System No. one (DSS 1) protocol |
| [10] ETSI EN 300 128:1992 | Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service—Service description |
Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service Digital Subscriber Signalling System No. one (DSS 1) protocol, Part 3: Test Suite Structure and Test Purposes (TSS&TP) specification for the user

Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]

**ISDN Approval Advisory Board (ITAAB)**

[14] Advisory Note 048  
Handling of glitches when performing tests B.2.4 and B.2.6.1 of TBR 003 [42]

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[18] Advisory Note 061  
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[19] Advisory Note 066  
Test case selection to be performed for Basic Access and for Primary Rate Access for layers 2 and 3

[20] Advisory Note 069  
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Requirements to EURO-ISDN basic access terminal equipment capable of handling only incoming or only outgoing calls

[22] Advisory Note 076  
Problem with performing the functional characteristics tests at Basic Access Layer 1 for TEs with an unstable state F3

[23] Advisory Note 080  
Use of preferred/exclusive bit in the RESTART ACK PDU in TC19003

[24] Advisory Note 083  
Layer 3 default DF69901

[25] Advisory Note 085  
Information element checking in layer 3 TC20002

[26] Advisory Note 086  
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[27] Advisory Note 087:1998  
Handling of IUT’s supporting En-bloc sending without using the Sending Complete IE, or supporting more than one dialling mode

[28] Advisory Note 088  
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4 ABBREVIATIONS AND DEFINITIONS
For the purposes of this Standard, the following abbreviations and definitions apply.

4.1 Abbreviations

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<tr>
<td>ACIF</td>
<td>Australian Communications Industry Forum</td>
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<tr>
<td>AS</td>
<td>Australian Standard</td>
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<td>AUSTEL</td>
<td>Australian Telecommunications Authority</td>
</tr>
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<td>BA</td>
<td>Basic Access</td>
</tr>
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<td>CE</td>
<td>Customer Equipment</td>
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<td>CLI</td>
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<td>Calling Line Identification Presentation</td>
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<td>CLIR</td>
<td>Calling Line Identification Restriction</td>
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<tr>
<td>CTR</td>
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<td>DUT</td>
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<td>EC</td>
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<td>EMC</td>
<td>Electromagnetic Compatibility</td>
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<td>ETSI</td>
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<td>IA5</td>
<td>International Alphabet No. 5</td>
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<td>Information Element</td>
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4.2 Definitions

4.2.1 Customer Equipment (CE)
Refer to the *Telecommunications Act 1997*.

4.2.2 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 [4].

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

4.2.3 Facility
Refer to Section 374(2) of the *Telecommunications Act 1997*.  

AS/ACIF S031:2001 COPYRIGHT  
JULY 2001
4.2.4 Integrated Services Digital Network (ISDN)

Integrated Services Digital Network means a digital network in which the same digital switches and digital paths are used to establish connections for different services, for example, telephony, data.

4.2.5 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 [4].

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

4.2.6 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 [4].

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

4.2.7 Telecommunications Network

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

5.1 General

If CE is intended for connection to an ETSI standards based ISDN Basic Access interface (‘ETSI interface’) only, Clauses 5.1 to 5.4 apply to the CE.

If CE is intended for connection to an AUSTEL Technical Standard 013 based ISDN Basic Access interface (‘AUSTEL interface’) only, or to both an ETSI interface an AUSTEL interface, Clauses 5.1 to 5.5 apply to the CE.

Note: The AUSTEL Technical Standard 013 based ISDN Basic Access service has only a limited life and migration to a service based on ETSI standards is envisaged.

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 a.c. 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 a 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

5.2.1.1 CE shall comply with the Layer 1 requirements of the Common Technical Regulation CTR003 (Am1) [5].


Compliance with Clause 5.2.1 should be checked by using the methods described in Clause 6.5.1.

5.2.2 Variations or additions

5.2.2.1 Terminating resistors

5.2.2.1.1 CE intended to work in a point-to-point wiring configuration may include terminating resistors. Where such resistors are included, the CE shall allow for disconnection/reconnection of the resistors for conformance testing purposes.

5.2.2.1.2 CE intended to work in a point-to-multipoint wiring configuration may include terminating resistors. Where such resistors are included, the CE shall allow for disconnection/reconnection of the resistors for conformance testing and installation purposes.

Note: For point-to-multipoint wiring configurations, terminating resistors will be connected across the conductors of each transmission pair at each end of the S-bus. These resistors may be installed in the permanent S-bus wiring, externally at the CE sockets using adaptors, or within the CE.

Compliance with Clause 5.2.2.1 should be checked by using the methods described in Clause 6.5.2.1.

5.2.2.2 ITAAB Advisory Notes

Where applicable, the CE shall comply with the requirements specified in ITAAB Advisory Notes 071 [21], 096 [30], 102 [32], 116 [35] and 126 [40].

Compliance with Clause 5.2.2.2 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 CTR003 (Am1) [5].


Compliance with Clause 5.3.1 should be checked by using the methods described in Clause 6.6.

5.3.2 ITAAB Advisory Notes

Where applicable, the CE shall comply with the requirements specified in ITAAB Advisory Notes 071 [21] and 096 [30].

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 CTR003 (Am1) [5].


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

Variations or 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)

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

5.4.2.1.2 If the MCID supplementary service is supported, the CE shall comply with the ETSI Malicious Call Identification (MCID) functional procedures specified in EN 300 128 [10] and EN 300 130-1 [11].

Note 1: ETSI Functional Procedures are subject to carrier availability.

Note 2: Alternate carrier 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 carrier 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, then 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 [7] (Stage 1).
(b) EN 300 093-1 [9] (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 [6] (Stage 1).
(b) EN 300 092-1 [8] (Stage 3).

Note 1: Some Network Carriers 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 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 Notes

Where applicable, the CE shall comply with the requirements specified in ITAAB Advisory Notes 055 [16], 071 [21], 087 [27] and 096 [30].

*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. should be checked by using the methods described in Clause 6.7.2.5.*
5.5 Additional requirements for CE intended for connection to an AUSTEL TS 013 based ISDN BA Interface

5.5.1 General
If CE is intended for connection to an AUSTEL Technical Standard 013 based ISDN Basic Access interface, it shall comply with the requirements specified in Clause 5.5.2.

5.5.2 Requirements

5.5.2.1 Item 1: Sending Complete IE
The CE shall not include the Sending Complete IE in the SETUP or Information Messages sent to the network. Refer to Clauses 4.5.27, 5.1.1 and 5.1.3 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.1 should be checked by using the method described in Clause 6.8.1.

5.5.2.2 Item 2: Progress Indicator IE
The CE shall not send the Progress Indicator IE with ‘Private Network Serving Remote User’ as the Location codepoints to the network. Refer to Clause 4.5.23 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.2 should be checked by using the method described in Clause 6.8.2.

5.5.2.3 Item 3: Bearer Capacity IE
The CE shall not send Bearer Capacity IE codepoints which are not defined in AUSTEL TS 013 [1][2] to the network. Refer to Clause 4.5.5 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.3 should be checked by using the method described in Clause 6.8.3.

5.5.2.4 Item 4: Cause IE
The CE shall not send the Cause IE with ‘Private Network Serving Remote User’ as a Location codepoint, to the network. Refer to Clause 4.5.12 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.4 should be checked by using the method described in Clause 6.8.4.

5.5.2.5 Item 5: Cause IE Octet 3a
The CE shall not send octet 3a of the Cause IE to the network. Refer to Clause 4.5.12 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.5 should be checked by using the method described in Clause 6.8.5.

5.5.2.6 Item 6: AUSTEL TS 013 cause values
The CE shall not send cause values which are not defined in AUSTEL TS 013 [1][2] to the network. Refer to Clause 4.5.12 of EN 300 403-1 [13].

The following Table lists the cause values which are not supported by AUSTEL TS 013 [1][2]:

<table>
<thead>
<tr>
<th>Cause Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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JULY 2001
### Cause value | Description
---|---
2 | No route to specified transit network
3 | No route to destination
7 | Call awarded and being delivered in an established channel
19 | No answer from user (user alerted)
29 | Facility rejected
49 | Quality of service not available
50 | Requested facility not subscribed
69 | Requested facility not implemented
83 | A suspended call exists but this call identity does not
84 | Call identity in use
85 | No call suspended
86 | Call having the requested call identity has been cleared
91 | Invalid transit network selection

Compliance with Clause 5.5.2.6 should be checked by using the method described in Clause 6.8.6.

#### 5.5.2.7 Item 7: High Layer Compatibility IE Octet 4a

If the CE sends octet 4a of the High Layer Compatibility IE, the maximum length of the High Layer Compatibility IE specified in AUSTEL TS 013 [1][2] shall not be exceeded. Refer to Clause 4.5.17 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.7 should be checked by using the method described in Clause 6.8.7.

#### 5.5.2.8 Item 8: Modem codepoints

If the CE sends Modem codepoints specified in ETSI for Low Layer compatibility IE, these may not be supported by other CE connected to AUSTEL TS 013 [1][2] networks. The CE shall support the exclusion of such codepoints. Refer to Clause 4.5.19 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.8 should be checked by using the method described in Clause 6.8.8.

#### 5.5.2.9 Item 9: Called Party Number IE (Number Plan)

The CE shall use Number Plan E.164 in the Called Party Number IE. Refer to Clause 4.5.8 to EN 300 403-1 [13].

Compliance with Clause 5.5.2.9 should be checked by using the method described in Clause 6.8.9.

#### 5.5.2.10 Item 10: Calling Party Number IE (Number Plan)

The CE shall use Number Plan E.164 in the Calling Party Number IE. Refer to Clause 4.5.10 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.10 should be checked by using the method described in Clause 6.8.10.

#### 5.5.2.11 Item 11: Calling Party Number IE (Type of Number)

The CE should not set the Type of Number (TON) ‘Unknown’ in the Calling Party Number IE. Refer to Clause 4.5.10 of EN 300 403-1 [13].
5.5.2.12 Item 12: Broadcast SETUP Message

5.5.2.12.1 The CE shall respond to a Broadcast SETUP Message according to applicable procedures (i.e. Point to Point procedures are not supported).

5.5.2.12.2 Restarts shall not be initiated. Refer to Clause 5.2 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.12 should be checked by using the method described in Clause 6.8.11.

5.5.2.13 Item 13: Multiple diagnostics

The CE should not send multiple diagnostics in a Cause IE. Refer to Clause 4.5.12 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.13 should be checked by using the method described in Clause 6.8.12.

5.5.2.14 Item 14: Length of Cause IE

The CE shall not send a Cause IE exceeding 6 octets. Refer to Clause 4.5.12 of EN 300 403-1 [13].

Compliance with Clause 5.5.2.14 should be checked by using the method described in Clause 6.8.13.

5.5.2.15 Item 15: CLIR

5.5.2.15.1 If the CE supports CLIR, it shall use procedures as defined in Sub-section 7.3, Part C of TPH 2001 [41], when connected to a TS 013 interface.

5.5.2.15.2 These procedures shall not be used when connected to ETSI based interfaces.

Compliance with Clause 5.5.2.15 should be checked by using the method described in Clause 6.8.14.

5.5.2.16 Item 16: ETSI supplementary service requests

The CE shall not send ETSI supplementary service requests to the network that are not supported in the carrier documentation. Refer to Part C of TPH 2001 [41].

Compliance with Clause 5.5.2.16 should be checked by using the method described in Clause 6.8.15.
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 6.8. Other methods 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)

6.5.1 General

6.5.1.1 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 CTR003 (Am1) [5] and the testing requirements specified in ITAAB Advisory Notes 048 [14], 053 [15], 060 [17], 061 [18], 069 [20], 071 [21], 076 [22], 088 [28], 094 [29], 096 [30], 098 [31], 102 [32], 110 [33], 114 [34], 116 [35], 118 [36], 120 [37] and 126 [40].
6.5.1.2 Any variations or additional testing requirements specified in Clause 6.5.2 should be complied with.

6.5.2 Variation/additional tests

6.5.2.1 Terminating resistors

Compliance with the requirements of Terminating Resistors specified in Clause 5.2.2.1 should be demonstrated by inspection or operation.

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 CTR003 (Am1) [5] and the testing requirements specified in ITAAB Advisory Notes 066 [19], 071 [21], 086 [26], 096 [30], 110 [33], 123 [38] and 125 [39].


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 CTR003 (Am1) [5] and the testing requirements specified in ITAAB Advisory Notes 055 [16], 066 [19], 071 [21], 080 [23], 083 [24], 085 [25], 087 [27], 096 [30] and 110 [33].


6.7.1.2 Any variations or additional testing requirements specified in Clause 6.7.2 should 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 [10] and EN 300 130-1 [11] should be demonstrated in accordance with test methods specified in EN 300 130-3 [12].

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 Device Under Test (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 in the Common Technical Regulation CTR003 (Am1) [5].

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.

6.8 Demonstration of compliance for CE intended for connection to an AUSTEL TS 013 based ISDN BA Interface

6.8.1 Item 1: Sending Complete IE

The exclusion of the Sending Complete IE in the SETUP or Information Messages sent to the network should be verified by monitoring SETUP and INFORMATION messages during CTR003 (Am1) testing.

6.8.2 Item 2: Progress Indicator IE

The sending of the Progress Indicator IE without ‘Private Network Serving Remote User’ as the Location codepoint to the network should be verified by the following method:

(a) Initiate PROGRESS message from DUT.

(b) Verify by monitoring PROGRESS messages.
6.8.3 Item 3: Bearer Capacity IE

The sending the Bearer Capacity IE without codepoints which are not defined in AUSTEL TS 013 [1][2] should be verified by checking that the device does not support Video or 7kHz Audio within the Bearer Capability IE of a SETUP message.

6.8.4 Item 4: Cause IE

The sending of the Cause IE without ‘Private Network Serving Remote User’ as a Location codepoint to the network should be verified by monitoring DISCONNECT, RELEASE, RELEASE COMPLETE or STATUS messages during CTR003 (Am1) testing.

6.8.5 Item 5: Cause IE Octet 3a

The omission of octet 3a of the Cause IE in messages to the network should be verified by monitoring DISCONNECT messages during CTR003 (Am1) testing.

6.8.6 Item 6: AUSTEL TS 013 cause values

The sending of Cause IE values which are not defined in AUSTEL TS 013 [1][2] should be verified by observation.

Note: All cause codes defined in Clause 5.5.2.6 are normally generated by networks and not by CE.

6.8.7 Item 7: High Layer Compatibility IE Octet 4a

The maximum length of the High Layer Compatibility IE specified in AUSTEL TS 013 [1][2] should be verified by the following method:

(a) Verify by monitoring High Layer Compatibility IE of a SETUP messages during CTR003 (Am1) testing (the High Layer Compatibility IE is optional).

(b) Ensure that the maximum length of the High Layer Compatibility IE is 4 octets.

6.8.8 Item 8: Modern codepoints

The exclusion of Modem codepoints specified in ETSI for Low Layer compatibility IE should be verified by checking that the optional octet 5d of the Low Layer compatibility IE in the SETUP message is not used.

6.8.9 Item 9: Called Party Number IE (Number Plan)

The use of the Number Plan E.164 in the Called Party Number IE should be verified by monitoring SETUP and/or INFORMATION messages sent to the network emulator during CTR003 (Am1) testing.

6.8.10 Item 10: Calling Party Number IE (Number Plan)

The use of the Number Plan E.164 in the Calling Party Number IE should be verified by monitoring SETUP messages sent to the network emulator during CTR003 (Am1) testing.

6.8.11 Item 12: Broadcast SETUP Message

The prevention of initiation of restarts should be verified by checking that the device supports point to multipoint connections during CTR003 (Am1) testing. The use of TEI = 0 should not be excluded.

6.8.12 Item 13: Multiple diagnostics

The omission of multiple diagnostics in a Cause IE should be verified by monitoring STATUS messages sent to the network emulator during CTR003 (Am1) testing.
6.8.13 Item 14: Length of Cause IE

The length of the Cause IE should be verified by monitoring STATUS messages sent to the network emulator during CTR003 (Am1) testing.

6.8.14 Item 15: CLIR

The procedures used as defined in Sub-section 7.3, Part C of TPH 2001 [41] should be verified by the following method:

(a) Initiate a SETUP message, with the CLIR service invoked, from the device under test to the network emulator.

(b) Verify that a Keypad IE is included in the SETUP message and contains '*CLIR*01#' or '*CLIR#' or '*31#' or '*31*01#'.

(c) Clear down the call attempt.

(d) Where CE is intended for connection to an ETSI Standard as well as an AUSTEL Technical Standard 013 based ISDN Basic Access Telecommunications Network interface, repeat the above test, when configured for the ETSI mode of operation, and confirm that for item 2, the Keypad IE is not sent.

6.8.15 Item 16: ETSI supplementary service requests

TS 013 networks support neither the FACILITY message nor the Facility IE that ETSI networks utilise to request services from the network. The omission of the FACILITY message and the Facility IE within a SETUP message by the DUT when activating or requesting network services should be verified by observation.
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Published by:
THE AUSTRALIAN COMMUNICATIONS INDUSTRY FORUM LTD
Level 9, 32 Walker Street
North Sydney NSW 2060
Correspondence: PO Box 444
Milsons Point NSW 1565
Telephone: (02) 9959 9111
Facsimile: (02) 9954 6136
TTY (02) 9923 1911
E-mail: acif@acif.org.au