COMMUNICATIONS
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AUSTRALIAN STANDARD

AS/CA S003.3:2010

Requirements for Customer Access Equipment for connection to a Telecommunications Network —

Part 3: Packet and cell based technologies

Adopted for regulatory purposes

Australian Standard – Requirements for *Customer Access Equipment for connection to a Telecommunications Network — Part 3: Packet/cell based technologies*

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FOREWORD

General

This Standard was prepared by the Communications Alliance WC20 ***Customer Access Equipment Revision*** Working Committee. It is one of a series of Telecommunication Standards developed under the Memorandum of Understanding between the Australian Communications Authority (ACA) and the Australian Communications Industry Forum.

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

This Standard is a revision of the AS/ACIF S003:2005 and AS/ACIF S003:2008 *Customer Access Equipment for connection to a Telecommunications Network* Standards. This Standard is the result of a consensus among representatives on the Communications Alliance Working Committee to produce it as an Australian Standard.

The designation of this Standard has been changed from AS/ACIF to AS/CA to reflect that the Standard has been published by Communications Alliance as an accredited Standards Development Organisation.

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 also need to comply with requirements in other Standards or other Parts of this Standard.

Part 3 of this Standard should be read in conjunction with ACIF S003.1 [3].

Applicable electrical safety Standards and 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 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.

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

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

Regulatory notice

This document has been made by ACMA as Telecommunications Technical Standard AS/CA S003.3–2010 under s376 of the *Telecommunications Act 1997*.

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

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

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

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Introduction

This introduction for the AS/CA S003.3 ***Australian Standard – Requirements for Customer Access Equipment for connection to a Telecommunications Network — Part 3: Packet/cell based technologies*** Standard is not an authoritative section of this Standard and is only provided as guidance for the user of the Standard to outline its objectives, and the factors that have been taken into account in its development.

The reader is directed to the clauses of this Standard for the specific requirements and to the 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 (Customer Equipment and Customer Cabling) Notice* (the TLN). The TLN can be obtained from the Australian Communications and Media Authority (ACMA) website at www.acma.gov.au.

The objective of this Standard is to provide the requirements and test methods for customer equipment that provides access (gateway functions) to a Telecommunications Network in order to meet the regulatory arrangements for such equipment in Australia. The objective of Part 3 of this Standard is to provide requirements specifically for packet and/or cell based technologies.

The objective of this revision is to divide the requirements for Customer Access Equipment (CAE)) into technology specific Parts. The separation of requirements into Part 3 facilitates compliance of —

(i) modified CAE that complied with the requirements for AS/ACIF S003:2008; and

(ii) new CAE that uses packet and/or cell based technologies.

The principal differences between this edition of AS/CA S003.3 and the 2008 edition of AS/ACIF S003 are the following:

(a) The transmission requirements that are specific to packet and/or cell based technologies, that were previously found in AS/ACIF S003:2008, have been included in AS/CA S003.3.

(b) A summary of the loss plan specified in ES 202 020 (relative levels +5 dBr / –10 dBr) has been included.

(c) The loss limits (tolerances) for CE designed or intended to provide a Voice Only channel have been relaxed from the ES 202 020 limits to allow for a practical loss measurement method using recorded speech. The loss tolerances specified in ES 202 020 are only practical for a voiceband path.

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1 INTERPRETATIVE GUIDELINES

1.1 Categories of requirements

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

1.2 Compliance statements

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

1.3 Definitions, expressions and terms

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

1.4 Notes

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

1.5 References

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

(b) If a document refers to another document, the other document is a sub-referenced document.

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

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

(e) A number in square brackets '[ ]' refers to a document listed in Section 3: REFERENCES.

1.6 Units and symbols

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

1.7 Parts of Standards

Customer Equipment (CE) scoped by this Standard is to comply with requirements in Part 1 and the applicable technology-specific Part of this Standard.

2 SCOPE

2.1 This Standard applies to Customer Equipment (CE) that is—

(a) either—

(i) using packet or cell based technologies to accomplish any port interconnection; or

(ii) using packet or cell based ports for external connections;

or both;

(b) designed with multiple ports (local or network) that provides or is intended to provide access (gateway functions) to a Telecommunications Network; and

(c) capable of switching, storage, processing, conversion, integration, line isolation/coupling or multiplexing of analogue or digital voice or voice equivalent communication.

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 described in this Standard.

3 REFERENCES

	Publication	Title
	Australian Standards	
[1]	AS ISO 1000-1998	The international System of Unit (SI) and its application.
	AS/ACIF and AS/CA Standards	
[2]	AS/ACIF S002:2005	Analogue interworking and non-interference requirements for Customer Equipment for connection to the Public Switched Telephone Network
[3]	AS/CA S003:2010	Customer Access Equipment for connection to a Telecommunications Network Part 1: General
[4]	AS/ACIF S004:2008	Voice frequency performance requirements for Customer Equipment
	ITU-T Recommendations	
[5]	G.122 (03/93)	Influence of national systems on stability and talker echo in international connections
[6]	G.223 (11/88)	Assumptions for the calculations of noise on hypothetical reference circuits for telephony
	ETSI Standards	
[7]	ES 201 168 V1.2.1 (2000-10)	Speech Processing, Transmission and Quality Aspects (STQ); Transmission characteristics of digital Private Branch eXchanges (PBXs) for interconnection to private networks, to the public switched network or to IP gateways
[8]	ES 202 020 V1.4.2 (2007-06)	Speech Processing, Transmission and Quality Aspects (STQ); Harmonized Pan-European/North-American approach to loss and level planning for voice gateways to IP based networks

4 ABBREVIATIONS AND DEFINITIONS

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

4.1 Abbreviations

ACIF	Australian Communications Industry Forum
ACMA	Australian Communications and Media Authority
AS	Australian Standard
CAE	Customer Access Equipment
CE	Customer Equipment
DC	Direct Current
IAD	Integrated Access Device
ISO	International Standardization Organization
PABX	Private Automatic Branch Exchange
PCM	Pulse Code Modulation
PSTN	Public Switched Telephone Network
VF	Voice Frequency

4.2 Definitions

4.2.1 Customer Access Equipment (CAE)

CE with multiple ports (local or network) that provides access (gateway functions) to a Telecommunications Network and is capable of switching, storage, processing, conversion, integration, line isolation/coupling or multiplexing of analogue or digital voice or voice equivalent communication.

Note: Examples of CAE include, but are not limited to, PABX or Key Systems, line isolators, ISDN terminal adapters, echo cancellers, interactive voice response systems, voice/packet gateway, IAD and voice messaging systems.

4.2.2 Customer Equipment (CE)

Refer to the *Telecommunications Act 1997*.

4.2.3 Echo Return Loss

Echo Return Loss (ERL) is the ratio of the power level of the voice signal received by CAE at the network port to the power level of the echo signal that is generated by the CAE at the network port with internal echo canceller enabled and local ports are terminated with nominal impedances. This is a weighted average of the loss values over the frequency range 400 to 3400 Hz using weighting factors as per ITU-T Recommendation G.122 [5].

4.2.4 Exchange line

See Network Port

4.2.5 Extension line

See Local Port (On Premises).

4.2.6 External extension

See Local Port (Off Premises).

4.2.7 Integrated Access Devices (IAD)

A device that aggregates multiple channels, (voice or voice equivalent, with data), for transport to a telecommunications network via one or more transmission paths.

Note: IADs may use DSL, ATM, optical or other means of connection.

4.2.8 Local Port (Off Premises)

A port on a CAE that is capable of supporting terminating CE over a connecting link outside a building cabling environment; a carrier or carriage service provider may provide part of the link or it may be wholly provided by the customer.

Note 1: A local port may be directly provided by a CAE or indirectly by system integral equipment.

Note 2: Also see Appendix E of AS/CA S003.1 [3] for international port abbreviations.

4.2.9 Local Port (On Premises)

A port on a CAE that is capable of supporting terminating CE over a connecting link within a building-cabling environment.

Note 1: A local port may be directly provided by a CAE or indirectly by system integral equipment.

Note 2: Also see Appendix E of AS/CA S003.1 [3] for international port abbreviations.

4.2.10 Network Port

A port on a CAE that is capable of connection to a Telecommunications Network Service.

Note: Also see Appendix E of AS/CA S003.1 [3] for international port abbreviations.

4.2.11 Network Port (Four wire E&M)

A Network Port for connection to a PSTN or CE that presents a 6-wire analogue interface. Four wires are used for the voice path. Two wires are used as separate E & M signalling leads.

4.2.12 Network Port (Indial)

A Network Port with the ability to accept address signals from the PSTN/ISDN.

4.2.13 Network Port (Loop-in)

A unidirectional call set-up port (set-up from the PSTN to a CAE) that is seized by application of a DC loop at the PSTN exchange.

4.2.14 Network Port (Ring-in/Loop-out)

A bothway call set-up port. Incoming signalling to CE is by application of a ring signal at the PSTN exchange. Outgoing signalling from CE is by application of a DC loop at the CE.

4.2.15 Point of zero relative level (0 dBr point)

A particular place within a transmission path chosen for reference and calculation purposes). ITU-T Recommendation G.223 [6] defines a 0 dBr point as a point where the long term average speech level per subscriber in an individual VF channel is –15 dBm.

4.2.16 Port

An interface to equipment for the purpose of supplying an output signal and/or accepting an input signal.

4.2.17 Public Switched Telephone Network (PSTN)

That part of the Telecommunications Network which enables any customer to establish a connection for voice frequency communication with any other customer either automatically or with operator assistance.

Note: The PSTN has a nominal transmission bandwidth of 3 kHz.

4.2.18 Telecommunications Network

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

4.2.19 Test Access Point (TAP)

Break access test points in the transmission path through the CAE equipment.

4.2.20 Tie Line Port

A Network Port for the interconnection of CAE.

Note: Also see Appendix E of AS/CA S003.1 [3] for international port abbreviations.

4.2.21 Voice Frequency (VF)

Those frequencies in the range of 300 Hz to 3.4 kHz.

4.2.22 Voiceband

Voiceband is a general term that may include frequencies from 200 Hz to 4.0 kHz.

5 REQUIREMENTS

5.1 Transmission requirements

5.1.1 General

Local Access Networks in Australia, in general, contain a greater percentage of higher loss lines than corresponding networks in Europe. Due to this a lower port loss value for the Analogue Local Port/Network Port Ring-Loop (L21/K2) port combination was specified in previous Australian Standards. The increased loss specified in ES 202 020 [8] for this call case may result in user difficulty with longer length lines.

5.1.2 Voiceband

Voiceband requirements are those that are necessary for satisfactory transmission of Voiceband signals that are not restricted to voice information. These will include Voiceband data, telemetry and other Voiceband signals that require a continuous end to end channel.

Voiceband CE may require a 3.1 kHz full duplex channel that can be used for communication encompassing coded or uncoded data in addition to speech telephony, e.g. Facsimile, modem and telemetry products.

5.1.3 Voice only

Voice Only requirements are those necessary only for the transmission of coded or uncoded voice signals. These requirements recognise that satisfactory transmission of voice does not require a continuous end to end channel, and that different coding schemes and bitrates may be employed to optimise bandwidth use.

5.1.4 Installation documentation

Appropriate documentation **shall** be supplied with the CE that sets out specifications for correct installation and operation to minimize the possibility that the item will be used in a way that is inconsistent with the (Voiceband or Voice Only) requirements of this Standard.

5.1.5 Applicability

The requirements of Clause 5.2 apply to each direction of the full duplex transmission paths for CE which has provision for one or more of the following:

(a) The connection of other CE (Ring-in/Loop out) compliant with AS/ACIF S002 [2].

(b) The transit switching of telephone calls in the call connection combinations shown in Table 1 of ETSI ES 202 020 [8].

Note 1: Transmission parameters for Local Port (On Premises) to Local Port (On Premises) are recommendations only and need not be tested.

Note 2. Transmission parameters for a local port that is considered to be proprietary (i.e. for the connection of analogue system integral equipment only), that is not compliant with the requirements of Clause 5.3 of AS/CA S003.1 [3] (and therefore not suitable for the connection of CE that is compliant with the requirements of AS/ACIF S002 [2]) are recommendations only and need not be tested.

5.1.6 DC test current

For all analogue ports, the DC current for testing purposes **shall** be determined by the range of terminations shown in Table 3 of AS/CA S003.1[3].

5.1.7 Echo Return Loss

Voiceband and Voice Only CE using packet voice technologies should provide Echo Return Loss > 50dB.

Note 1: Any echo control equipment should be disabled on recognition of call connections carrying data traffic.

Note 2: This clause is subject to review and may become a mandatory requirement in a future revision of this Standard.

5.1.8 Test Access Points (TAPs)

Provision of TAPs assist in laboratory testing of the switchblock/transmission paths and more importantly, provide standard test points for initial line-up and testing of local and network ports.

Figure 1 depicts the arrangement of switchblock/transmission paths and TAPs in a CE.

Compliance with Clause 5.1 should be checked using the test set-up as indicated in Clause 6.6.1.

5.2 Transmission Requirements for Voiceband

5.2.1 General

The Voiceband transmission requirements are derived from the harmonized European/North American requirements for IP based telephony. Implementation of these requirements for Voiceband technologies will assist in ensuring a satisfactory performance for connections for IP based telephony both nationally and internationally.

5.2.2 Loss Plan and Transmission Requirements

5.2.2.1 CE that is designed or intended to provide a Voiceband channel **shall** comply with—

(a) the Loss Plan contained in Clause 5.1 of ETSI ES 202 020 [8] (See Table 1); and

(b) the applicable transmission requirements of Section 5 of ETSI ES 201 168 [7].

Note 1: The tolerance value for the Loss Plan is in Clause 5.2.1 of ETSI ES 201 168 [7] (i.e. +/–0.35dB).

Note 2: The applicable transmission requirements will be dependant on the functions and interfaces of the particular CE.

5.2.2.2 Intermodulation products

CE **shall not** produce any $2f_1 – f_2$ (or $2f_2 – f_1$) intermodulation product having a level greater than 35 dB below the lower power level of either output signal when measured using two superimposed sine-wave signals (denoted as the fundamental frequencies f_1 and f_2) each in the range 450 Hz to 2050 Hz (but not harmonically related), and of equal level in the range –21 dBm0 to –4 dBm0.

Compliance with Clause 5.2.2.2 should be checked by using the test set up as indicated in Clause 6.6.1.

5.2.2.3 Spurious in-band signals

For CE, the output level at any frequency, other than the frequency of the applied signal, **shall** be less than –40 dBm0, when measured selectively (maximum 40 Hz bandwidth) in the range 300 Hz to 3400 Hz, with a sinusoidal signal in the frequency range 700 Hz to 1100 Hz, and at a level of 0 dBm0 applied to the input port of a test call connection.

Compliance with Clause 5.2.2.3 should be checked by using the test set up as indicated in Clause 6.6.1.

5.3 Transmission Requirements for Voice Only

5.3.1 General

The Voice Only transmission requirements are derived from the harmonized European/North American requirements for IP based telephony. Implementation of these requirements for Voice Only technologies will assist in ensuring a satisfactory performance for connections for IP based telephony both nationally and internationally.

Note: Voice Only CE may use a variety of encoding methods and will employ a different bandwidth to Voiceband products.

5.3.2 Loss Plan and Transmission Requirements

CE that is designed or intended to provide a Voice Only channel, (i.e. only intended for carriage of speech), **shall** comply with—

(a) the Loss Plan contained in Clause 5.1 of ETSI ES 202 020 [8] (See Table 1), with a tolerance value for the Loss Plan of +/–2.0 dB; and

(b) the applicable transmission requirements of ETSI ES 201 168 [7].

Compliance with Clause 5.3.2 should be checked by the method described in Clause 6.6.1.

5.4 Loss Plan Summary

The ETSI Loss Plan is presented in Table 1 in a summarised form in both half-channel and full-channel format.

See Table E1 of AS/CA S003.1[3] for interpretation of the ETSI interface designations, against the Australian port types.

Table 1

ETSI Loss Plan summary

Interface	Transmit relative level		Transmit Loss
L21	+5	→	5
L22	+2	→	2
LD	0	→	0
WAN	0	→	0
KD	0	→	0
K2	–6	→	–6
M4	–2	→	–2

Voice Gateway Transmit Losses and relative level from Designated Port to the 0 dBr point

Receive Loss		Receive relative level	Interface
10	→	–10	L21
7	→	–7	L22
0	→	0	LD
0	→	0	WAN
0	→	0	KD
–1	→	+1	K2
–2	→	+2	M4

Voice Gateway Receive Losses and relative level from the 0 dBr point to the Designated Port

Interface		L21	L22	LD	WAN	KD	K2	M4
		↑	↑	↑	↑	↑	↑	↑
L21	→	15	12	5	5	5	4	3
L22	→	12	9	2	2	2	1	0
LD	→	10	7	0	0	0	–1	–2
WAN	→	10	7	0	0	0	–1	–2
KD	→	10	7	0	0	0	–1	–2
K2	→	4	1	–6	–6	–6	–7	–8
M4	→	8	5	–2	–2	–2	–-3	–4

Voice Gateway Combined (Full Channel) Losses

Note 1: The Loss Tolerance for Voiceband connections in CE is +/– 0.35 dB for the half-channel Loss Plan.

Note 2: The Loss Tolerance for Voice Only connections in CE is +/–2.0 dB for the half-channel Loss Plan.

Note 3: Within these tables, a negative sign (–) indicates a gain value.

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 to 6.6.

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 configuration are variable, the test should be carried out over the indicated range for that element.

6.2.3 Unless indicated elsewhere within this Standard—

(a) the accuracy level of all measurements should be better than ± 2% for voltage and current, ± 0.25% for frequency and ± 0.5% for time; and

(b) the tolerance of the nominal 48 V d.c. test source should be ± 0.5 V.

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 Test configurations

Test configurations used should be outlined for each individual test. Test circuits other than those indicated in this Standard may be used but details of the circuits are to accompany test reports.

Note: Some tests for which no specific test configuration is provided in this Standard may be performed by inspection, as indicated in the appropriate requirements Clauses of this Standard.

6.4 Test level

Unless otherwise specified, transmission tests should be carried out with a send level of –10 dBm0 (i.e. –10 dBm at 0 dBr point).

6.5 Test frequencies

Test frequencies should be in the range of 300 Hz to 4000 Hz unless otherwise specified in the relevant requirement Clauses of this Standard. Sufficient measurements should be carried out around all nodal points of relevant masks, where applicable.

Note: Where the test frequencies are sub-multiples of the PCM sampling rate of 8000 Hz, an offset of 3 Hz to 20 Hz should be used to reduce errors in level measurements.

6.6 Parameters to be tested

All requirements specified in this Standard, applicable to the particular CE, should be verified by testing or inspection, as appropriate.

6.6.1 Transmission measurements

6.6.1.1 The transmission requirements of these Clauses should be measured between representative samples of all available port types. Transmission tests should be performed using the circuit of Figure 12 of AS/CA S003.1[3] as a guide. The values of V–, $R_{NETWORK}$ and R_{LOCAL} should be the minimum, maximum, and mid-range values selected from Table 3 of AS/CA S003.1[3].

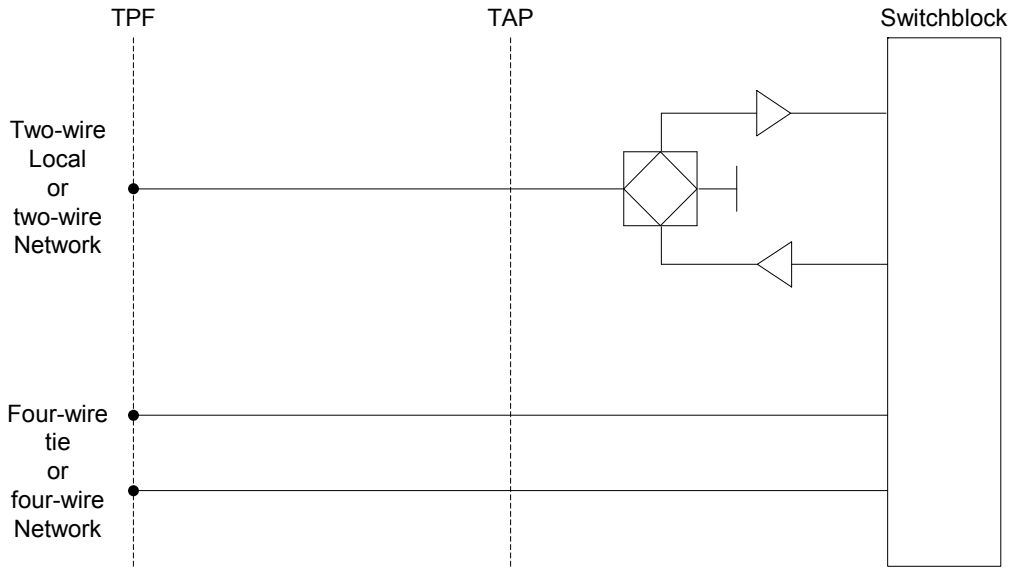
6.6.1.2 When performing return loss measurements, the return path of the four wire circuit in the call connection should be opened. To enable testing, instructions should be provided with the CE equipment to indicate the method of opening this return path. If the return path is not readily accessible then the far end of the test call connection should be terminated with the appropriate impedance given in Table 4 of AS/CA S003.1[3], i.e. far end balance network, to achieve maximum semi-loop loss.

6.6.1.3 Relative Level and Loss measurements on a Voice Only port should be performed using a defined pre-recorded speech sample having a minimum duration of two minutes, bandwidth limited to between 300 Hz and 4 kHz, at a level appropriate for the port addressed.

A recorded speech level of –10vu at a Point of Zero Relative Level should be used for all Voice Only tests.

The sending and receiving levels should be validated by measurement using a Volume Unit (VU) indicator. See Appendix A of AS/ACIF S004 [4] for the method of reading a VU indicator.

Appropriate voice frequency terminations should be in place when performing measurements using a VU indicator.



TPF Test Point Frame
TAP Test Access Point

Figure 1
CE Test Access Points TAPs

PARTICIPANTS

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

Organisation	Membership
ACMA	Non-Voting
Comtest Laboratories	Voting
NEC	Voting
Optus	Voting
Telstra	Voting
Testing & Certification Australia	Voting
Thompson Telecom Australia	Voting
Trillium Communications	Voting

This Working Committee was chaired by Laurie Collier. Mike Johns of Communications Alliance Ltd provided project management support.

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

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

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

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

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