

**COMMUNICATIONS
ALLIANCE LTD**



AUSTRALIAN STANDARD

AS/CA S008:2010

Requirements for customer cabling products

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FOREWORD

General

This Standard was prepared by the *CECRP/WC18 Cabling Standards* Working Committee and most recently revised by the *WC24 : Customer Cabling Products Revision* Working Committee. It is one of a series of Telecommunication Standards developed under the Memorandum of Understanding between the Australian Communications Authority (ACA) and the Australian Communications Industry Forum (ACIF).

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

Communications Alliance was formed in 2006 and continues the functions previously fulfilled by ACIF.

This Standard is a revision of *AS/ACIF S008:2006 Requirements for customer cabling products*.

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

The requirements in this Standard are intended to be 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.

Applicable electrical safety Standards, EMC and EMR Standards may apply under Commonwealth or State/Territory laws, or both.

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

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

Regulatory notice

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

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

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

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

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

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Melbourne VIC 8010
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Introduction

This introduction for the AS/ACIF S008:2010 **Requirements for customer cabling products** Standard is not an authoritative section of this Standard and is only provided as guidance for the user of the Standard to outline its objectives, the factors that have been taken into account in its development and to list the principle differences between the new and the previous edition.

The reader is directed to the clauses of this Standard for the specific requirements and to the Australian Communications and Media Authority (ACMA) for the applicable telecommunications labelling and compliance arrangements.

Note: Further information on the telecommunications labelling and compliance arrangements can be found in *The Telecommunications Labelling (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 for cabling products and related customer equipment for safety and interoperability in order to meet the regulatory arrangements in Australia.

The objective of this revision is to update the requirements of customer cabling products to reflect product supply in Australia and to update referenced Standards that have been revised since the previous edition of this Standard.

The requirements for surge suppression devices have been removed from this edition of the Standard as they are specified in AS/NZS 4117 *Surge Protection Devices for Telecommunication Applications* as referenced under the ACMA *Telecommunications Labelling (Customer Equipment and Customer Cabling) Notice 2001*.

The principle differences between this edition of AS/ACIF S008 and the previous edition are—

- (i) the references to other Standards have been updated.
- (ii) the requirements for insulating (Clause 5.4.1.4.1) and accessing (Clause 5.4.1.4.3) earthing/bonding bars and terminals have been amended.
- (iii) the requirements for accessing earthing/bonding bars and terminals have been amended (Clause 5.4.1.4.3).
- (iv) the requirements for surge suppression devices (SSDs) have been removed (the former Clause 5.4.1.5 in the 2006 edition).
- (v) the requirements for PVC insulation and sheath (Tables 1 and 2) have been updated to align with values in the 2008 edition of AS 1049.
- (vi) coax cables with a copper-clad aluminium centre conductor greater than 2 mm have been excluded from the conductor composition requirements of Clause 5.6.6.1.
- (vii) the requirements for special applications cables (Clause 5.6.18) have been amended to include the requirements for insulation, sheath and jacket material in AS 1049.

- (viii) requirements for access to cable terminations has been added (Clause 5.7.1.6).
- (ix) fixed telecommunications socket-outlets have been disallowed from mounting on faceplates containing low voltage socket outlets or switches (Clause 5.7.1.7).

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1 INTERPRETATION

1.1 Categories of requirements

This Standard contains mandatory requirements as well as provisions that are recommendations 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 Customer Cabling and related Customer Equipment 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].

2 SCOPE

- 2.1 This Standard applies to cabling products (including cable and related customer equipment) intended for connection to the customer side of the boundary of a telecommunications network.
- 2.2 This Standard does not apply to cabling products intended primarily for the distribution of AC mains supply.
- 2.3 This Standard does not apply to products intended to be used for telecommunications earthing systems or telecommunications power distribution (e.g. earthing/power conductors, earthing bars, busbars, earthing/power terminals, line tap devices, earth electrodes and associated fittings, batteries, fuses and circuit breakers).
- 2.4 This Standard does not apply to surge suppression devices.

Note: Requirements for surge suppression devices are specified in AS/NZS 4117 *Surge Protection Devices for Telecommunication Applications*. Refer to the *ACMA Telecommunications Labelling (Customer Equipment and Customer Cabling) Notice 2001*.

- 2.5 A cabling product is not excluded from the scope of this Standard by reason only that it forms part of equipment that is subject to another Standard, for example, distribution frames or cable tails that form part of Customer Access Equipment (CAE).

Note 1: The connection of cabling products includes connection otherwise than by means of physical contact, e.g. a connection by means of radiocommunication.

Note 2: This Standard should be read in conjunction with AS/ACIF S009 [20] which specifies the requirements for the installation and maintenance of fixed or concealed cabling or equipment that is connected or is intended to be connected to a telecommunications network.

3 REFERENCES

	Publication	Title
	Australian Standards	
[1]	AS ISO 1000:1998	The international System of Units (SI) and its application
[2]	AS 1049-2008	Telecommunication cables—Insulation, sheath and jacket Part 1: Materials Part 2: Test methods
[3]	AS/NZS 1574:1996	Copper and copper alloys —Wires for electrical purposes
	AS/NZS 1660	Test methods for electric cables, cords and conductors
[4]	AS/NZS 1660.3:1998	Part 3: Electrical tests (including Amdt 1: 2001)
	AS/NZS 1660	Test methods for electric cables, cords and conductors
[5]	AS/NZS 1660.5.6:2005	Part 5.6: Fire Tests – Test for vertical flame propagation for a single insulated wire or cable
[6]	AS/NZS 1802:2003	Electric cables – Reeling and trailing – For underground coal mining purposes
	AS/NZS 2053	Conduits and fittings for electrical installations
[7]	AS/NZS 2053.1:2001	Part 1: General requirements
	AS/NZS 2211	Safety of laser products
[8]	AS/NZS 2211.1:2004	Part 1: Equipment classification requirements and user's guide (IEC 60852-1: 2001 MOD)
[9]	AS/NZS 2373:2003	Electric cables – twisted pair for control and protection circuits
[10]	AS/NZS 3000:2007	Electrical installations (known as the Australian/New Zealand Wiring Rules)
[11]	AS/NZS 3112:2004	Approval and test specification - Plugs and socket-outlets
[12]	AS/NZS 3191:2008	Electric flexible cords
	AS/NZS 5000	Electric cables – polymeric insulated
[13]	AS/NZS 5000.1:2005	Part 1: For working voltages up to and including 0.6/1 (1.2) kV
[14]	AS/NZS 5000.2:2006	Part 2: For working voltages up to and including 450/750 V
[15]	AS/NZS 5000.3:2003	Part 3: Multicore control cables
[16]	AS 60529:2004	Degrees of protection provided by enclosures (IP Code)

[17]	AS/NZS 60695.2.13:2001	Fire hazard testing – glowing/hot wire based test methods – glow-wire ignitability test method for materials
[18]	AS/NZS 60702.2:2005	Approval and test specification- Terminations and glands for mineral insulated metal-sheathed cables
	AS/NZS 60950	Information Technology Equipment - Safety
[19]	AS/NZS 60950.1:2003	Part 1: General requirements
	AS/ACIF Standards	
[20]	AS/ACIF S009:2006	Installation requirements for customer cabling – Wiring Rules
	IEC Publications	
[21]	IEC 60096-1:1986	Radio-frequency cables. Part 1: General requirements and measuring methods
[22]	IEC 60189-1:1986	Low-frequency cables and wires with PVC insulation and PVC sheath. Part 1: General test and measuring methods
[23]	IEC 60352-4:1994	Solderless non-accessible insulation displacement connections – General requirements, test methods and practical guidance
[24]	IEC 60512-3-1 Edition 1.0 (2002-02)	Connectors for electronic equipment - Tests and measurements - Part 3-1: Insulation tests - Test 3a: Insulation resistance
[25]	IEC 60603-7 Edition 3.0 (2008-07)	Connectors for electronic equipment – Part 7: Detail specification for 8-way, unshielded, free and fixed connectors
[26]	IEC 60793-2 Edition 6.0 (2007-11)	Optical fibres. Part 2: Product specification - General
[27]	IEC 60794-1-1:2001	Optical fibre cables - Part 1-1 – General
[28]	IEC 60794-1-2:2003	Optical fibre cables - Part 1-2 – Basic optical cable test procedures. (for Water Penetration Test)
	Other References	
[29]	CFR FCC 47— Part 68.500: October 2000	Code of Federal Regulations Federal Communications Commission Title 47: Telecommunications Part 68: Connection of terminal equipment to the telephone network Sub part F: Connector Specifications. Paragraph 500: Specifications

4 ABBREVIATIONS AND DEFINITIONS

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

4.1 Abbreviations

AC (or a.c.)	alternating current (in r.m.s. value unless stated otherwise)
ACIF	Australian Communications Industry Forum
ACMA	Australian Communications and Media Authority
AS	Australian Standard
CAE	Customer Access Equipment
CE	Customer Equipment
CES	Communications Earth System
DC (or d.c.)	direct current
ELV	Extra-Low Voltage
FCC	Federal Communications Commission USA
HV	High Voltage
IEC	International Electrotechnical Commission
IP	International Protection (rating) (sometimes referred to as Ingress Protection)
IPXn	rated for protection against ingress of water only (n = 0 to 8, according to the degree of protection specified)
ISDN	Integrated Services Digital Network
LAN	Local Area Network
LV	Low Voltage
MDF	Main Distribution Frame
MIMS	Mineral Insulated Metal Sheath
NTD	Network Termination Device
NZS	New Zealand Standard
PVC	Polyvinyl Chloride
SELV	Safety Extra-Low Voltage
SWA	Steel Wire Armouring
TNV	Telecommunications Network Voltage
TO	Telecommunications Outlet
TRC	Telecommunications Reference Conductor
TS	Technical Standard
UV	UltraViolet (radiation/light)
Z ₀	Characteristic Impedance

4.2 Definitions

4.2.1 AC mains supply

An AC power distribution system external to the equipment for supplying power to AC powered equipment

Note 1: Power sources may include public or private utilities and equivalent sources such as motor-driven generators and uninterruptible power supplies.

Note 2: Adapted from AS/NZS 60950.1 [19].

4.2.2 Aerial cable

Cable that is suspended between poles, buildings or other supporting structures external to a building.

4.2.3 Cable

An assembly of one or more cable units (e.g. pairs, quads, coaxial tubes, fibres) in an overall sheath.

Note: The assembly may include such things as a shield, moisture barrier, filling compound, strengthener or bearer wire.

4.2.4 Cabling product

A passive device (including any cable or connecting hardware) that is intended for use on the customer side of the boundary of a telecommunications network.

4.2.5 Carriage Service

A service for carrying communications by means of guided and/or unguided electromagnetic energy.

4.2.6 Carriage service provider

If a person supplies, or proposes to supply, a listed carriage service to the public using:

- (a) a network unit owned by one or more carriers; or
- (b) a network unit in relation to which a nominated carrier declaration is in force;

the person is a carriage service provider.

4.2.7 Carrier

The holder of a carrier licence.

4.2.8 Certified Components List (CCL)

The list that was established by AUSTEL and is published by ACMA on its website.

Note 1: AUSTEL and the Spectrum Management Agency merged in the creation of the Australian Communications Authority (ACA) on 1 July 1997. The ACA and the Australian Broadcasting Authority (ABA) merged in the creation of the Australian Communications and Media Authority (ACMA) on 1 July 2005.

Note 2: The use of the CCL was discontinued on 1 July 1997, but remains in force in accordance with ACA TS 102–1998 *Telecommunications Technical Standard (Customer Equipment and Customer Cabling)*.

4.2.9 Communications Earth System (CES)

A system of earthing using common elements to provide for earthing of electrical and communications equipment within a premises.

Note: A CES may be used for protective and functional earthing for telecommunications purposes.

4.2.10 Compliant

An item that has been labelled in accordance with the Telecommunications Labelling Notice.

4.2.11 Conduit

A tube or pipe that physically accommodates cables.

Note: In this Standard, conduit and pipe have the same meaning. See also 'Duct' and 'Trunking'

4.2.12 Connecting Hardware

A passive device used to join or interconnect lines, or to connect customer equipment to a line.

4.2.13 Cord

A flexible cable with a minimum of one termination (e.g. on a plug).

Note: Cords are used for connection of moveable customer equipment or to afford flexibility, e.g. includes patch cords, fly leads and pigtails.

4.2.14 Cordage

A flexible cable that is not fitted with connectors, which may be used in the assembly of cords.

4.2.15 Customer Access Equipment (CAE)

Customer equipment 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 1: 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, integrated access devices and voice messaging systems.

Note 2: CAE was formerly referred to as CSS (customer switching system).

4.2.16 Customer cabling

A line that is used, installed ready for use or intended for use on the customer side of the boundary of a telecommunications network.

Note: In the context of this Standard a reference to customer cabling is a reference to cable including cord and cordage.

4.2.17 Customer Equipment (CE)

(a) any equipment, apparatus, tower, mast, antenna or other structure or thing; or

(b) any system (whether software-based or otherwise);

that—

(1) is used, installed ready for use or intended for use in connection with a carriage service; and

(2) under the regulations, is treated as customer equipment;

but does not include a line.

Note: In the context of this Standard a reference to customer equipment is a reference to all products excluding cable, cord and cordage.

4.2.18 Distributor

A collection of components used to terminate cables and which provide for cross-connection of lines.

Note 1: An example of a distributor is a jumperable distribution frame or a patch panel.

Note 2: Where cable termination equipment is used to interconnect two or more cables without cross-connection, for the purposes of this Standard, it is not regarded as a distributor.

4.2.19 Duct

A closed passage for housing and protecting cables and conductors. See also 'Conduit' and 'Trunking'.

4.2.20 Enclosure

A housing or covering for cables or equipment providing an appropriate degree of protection against external influences or end-user contact with hazardous voltages, ELV or TNV.