

**COMMUNICATIONS
ALLIANCE LTD**



AUSTRALIAN STANDARD

AS/CA S041.2:2015

**Requirements for DSL Customer Equipment for
connection to the Public Switched Telephone
Network — Part 2: Modems for use in connection
with all DSL services**

Australian Standard — Requirements for DSL Customer Equipment for connection to the Public Switched Telephone Network — Part 2: Modems for use in connection with all DSL services

This Standard was issued in draft form for public comment as DR AS/CA S041.2:2014.

First published as AS/ACIF S041:2005

Second edition as AS/ACIF S041.2:2009

This edition as AS/CA S041.2:2015, published on 25 February 2015

ISBN: 1 74000 440 X

Disclaimers

1. Notwithstanding anything contained in this Standard:
 - (a) Communications Alliance disclaims responsibility (including where Communications Alliance or any of its officers, employees, agents or contractors has been negligent) for any direct or indirect loss, damage, claim, or liability any person may incur as a result of any:
 - (i) reliance on or compliance with this Standard;
 - (ii) inaccuracy or inappropriateness of this Standard; or
 - (iii) inconsistency of this Standard with any law; and
 - (b) Communications Alliance disclaims responsibility (including where Communications Alliance or any of its officers, employees, agents or contractors has been negligent) for ensuring compliance by any person with this Industry.
2. The above disclaimers will not apply to the extent they are inconsistent with any relevant legislation.

Copyright

© Communications Alliance Ltd 2015

This document is copyright and must not be used except as permitted below or under the Copyright Act 1968. You may reproduce and publish this document in whole or in part for your or your organisation's own personal or internal compliance, educational or non-commercial purposes. You must not alter or amend this document in any way. You must not reproduce or publish this document for commercial gain without the prior written consent of Communications Alliance. Organisations wishing to reproduce or publish this document for commercial gain (i.e. for distribution to subscribers to an information service) should apply to Communications Alliance by contacting the Communications Alliance Commercial Manager at info@commsalliance.com.au.

FOREWORD

General

This Standard was prepared by Communications Alliance and most recently revised by the WC58 : **VDSL2 and Vectoring** 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 the ACMA.

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

This Standard is a revision of AS/ACIF S041:2009 **Requirements for DSL Customer Equipment for connection to the Public Switched Telephone Network**.

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

The requirements in this Standard are consistent with the aims of s376 of the *Telecommunications Act 1997*. Specifically these aims are—

- (a) protecting the integrity of a telecommunications network or facility;
- (b) protecting the health and safety of persons;
- (c) ensuring access to 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.

AS/CA S041 consists of the following Parts under the general title **Requirements for DSL Customer Equipment for connection to the Public Switched Telephone Network**:

- Part 1: *General*
- Part 2: *Modems for use in connection with all DSL services*
- Part 3: *Filters for use in connection with all DSL services*

The Standard should be read in conjunction with AS/CA S041.1 [3]

Applicable electrical safety Standards and 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 (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 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:

Australian Communications and Media 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
Email: info@acma.gov.au

Introduction

This introduction for the AS/CA S041.2 ***Requirements for DSL Customer Equipment for connection to the Public Switched Telephone Network – Part 2: Modems for use in connection with all DSL services*** Standard is not an authoritative section of this Standard and is only provided as guidance for the user of the Standard to outline its objectives, the factors that have been taken into account in its development and to list the principal differences between the new and the previous edition.

The reader is directed to the clauses of this Standard for the specific requirements and to the 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 ACMA website at www.acma.gov.au.

The objective of this Standard is to provide the technical requirements and test methods for Customer Equipment (CE), or the parts of CE that are designed or intended for connection to a DSL service that shares the metallic local loop with an analogue PSTN two-wire service in order to meet the regulatory arrangements for such equipment in Australia.

The objective of this revision is to update to the current template at the same time that revisions were being made to other parts of AS/CA S041.

The principal differences between this edition of AS/CA S041.2 and the previous edition of AS/ACIF S041.2 are:

- (i) Editorial updates.
- (ii) An update to the current document template for Communications Alliance.

TABLE OF CONTENTS

1	INTERPRETATIVE GUIDELINES	1
	1.1 Categories of requirements	1
	1.2 Compliance statements	1
	1.3 Definitions, expressions and terms	1
	1.4 Notes	1
	1.5 References	1
	1.6 Units and symbols	1
2	SCOPE	2
3	REFERENCES	3
4	ABBREVIATIONS AND DEFINITIONS	5
	4.1 Abbreviations	5
	4.2 Definitions	5
	4.2.1 Carrier	5
	4.2.2 Customer Equipment	5
	4.2.3 Facility	5
	4.2.4 Line Port	5
	4.2.5 Line Terminating Equipment	5
	4.2.6 Metallic local loop	6
	4.2.7 Off-hook	6
	4.2.8 On-line	6
	4.2.9 Public Switched Telephone Network (PSTN)	6
	4.2.10 Ring-in/Loop-out PSTN line	6
	4.2.11 Standard Telephone Service	6
	4.2.12 Telecommunications Network	6
	4.2.13 Telecommunications Reference Conductor (TRC)	6
	4.2.14 Voice Frequency (VF)	6
	4.2.15 Voiceband	7
5	REQUIREMENTS	8
	5.1 General	8
	5.2 PSTN line properties	8
	5.2.1 DSL Line Impedance	8
	5.2.2 Impedance Balance (Longitudinal Conversion Loss)	8
	5.2.3 Noise Performance	9
6	TESTING	10
	6.1 Verification of compliance with requirements	10
	6.2 Standard test conditions	10
	6.3 Parameters to be tested	10
	6.3.1 Power supply	10

6.3.2	<i>Impedance balance (Longitudinal Conversion Loss)</i>	11
6.3.3	<i>Noise performance</i>	11
6.3.4	<i>Test for DSL Line Impedance</i>	11
PARTICIPANTS		14

FIGURES

Figure 1	Minimum impedances in the Voiceband	12
Figure 2	Noise measurements psophometric	12
Figure 3	Impedance balance test circuit	13

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].