

Australian/New Zealand Standard™

**Testing of balanced communication
cabling in accordance with
ISO/IEC 11801**

**Part 2: Patch cords and work area
cords**



AS/NZS IEC 61935.2:2006

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CT-001, Communications Cabling. It was approved on behalf of the Council of Standards Australia on 20 September 2006 and on behalf of the Council of Standards New Zealand on 22 September 2006.
This Standard was published on 11 October 2006.

The following are represented on Committee CT-001:

Australian Chamber of Commerce and Industry
Australian Communications and Media Authority
Australian Electrical and Electronic Manufacturers Association
Australian Information Industry Association
Communications Alliance
Electrical Compliance Testing Association
Energy Networks Association
Engineers Australia
National Electrical and Communications Association
New Zealand Consulting Interests
New Zealand Defence Force
Singtel Optus
Telstra Corporation
Vendor Interests, NZ

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 06364.

Australian/New Zealand Standard[™]

**Testing of balanced communication
cabling in accordance with
ISO/IEC 11801**

**Part 2: Patch cords and work area
cords**

Originally as part of AS/NZS 3087:2000.
Jointly revised and redesignated as AS/NZS IEC 61935.2:2006.

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 7775 9

PREFACE

This Standard was prepared by the Standards Australia/Standards New Zealand Committee CT-001, Communications Cabling to supersede AS/NZS 3087.2:2003, *Telecommunications installations—Generic cabling systems, Part 2: Specification for the testing of patch cords in accordance with AS/NZS 3080*.

The objective of this Standard is to provide users with methods to ensure the compatibility of modular plug cords to be used in cabling according to ISO/IEC 1180, which has been adopted as AS/NZS 3080, and provide test methods and associated requirements to demonstrate the performance and reliability of these cords during their operational lifetime.

This Standard is identical with, and has been reproduced from IEC 61935-2:2005, *Testing of balanced communication cabling in accordance with ISO/IEC 11801—Part 2: Patch cords and work area cords*.

As this Standard is reproduced from an international standard, the following applies:

- (a) Its number appears on the cover and title page while the international standard number appears only on the cover
- (b) In the source text ‘this part of IEC 61935’ should read ‘this Australian/New Zealand Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
ISO/IEC		AS/NZS	
11801	Information technology— Generic cabling for customer premises	3080	Telecommunications installations—General cabling for commercial premises
IEC 61935	Testing of balanced communication cabling in accordance with ISO/IEC 11801	AS/NZS IEC 61935	Testing of balanced communication cabling in accordance with ISO/IEC 11801
61935-1	Part 1: Installed cabling	61935.1	Part 1: Installed cabling
60068	Environmental testing	60068	Environmental testing
60068-2-61	Part 2-61: Test methods—Test Z/ABDM: Climatic sequence	60068.2.61	Part 2.61: Tests—Test Z/ABDM: Climatic sequence

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

CONTENTS

	<i>Page</i>
1 Scope.....	1
2 Normative references	1
3 Terms and definitions	1
4 General requirements and test configuration	2
4.1 Cable and connector design	2
4.2 Cable assembly, cable and connector tests	2
4.3 Test configuration and equipment	2
4.4 Modular plug-cord test requirements	4
5 Acceptance tests	5
5.1 Visual inspection	5
5.2 Wire map.....	5
5.3 Propagation delay	6
5.4 Delay skew.....	6
5.5 Insertion loss.....	6
5.6 Return loss.....	6
5.7 Near end crosstalk (NEXT).....	7
6 Periodic tests	8
6.1 General	8
6.2 Tensile strength	8
6.3 Flexure.....	8
6.4 Bending.....	9
6.5 Twisting.....	10
6.6 Crushing	11
6.7 Dust test.....	12
6.8 Coupling attenuation.....	14
6.9 Climatic sequence	14
7 Test-head requirements	15
7.1 General	15
7.2 Minimum requirements for all test-head designs	15
7.3 Additional FEXT requirements for modular 8-pin compatible test heads.....	15
7.4 Additional return loss requirements for modular 8-pin compatible test heads	15
7.5 NEXT loss centring requirements for modular 8-pin compatible test heads	15

Figure 1 – Transmission performance test configuration for patch cords for NEXT and return loss	3
Figure 2 – Required test set-up (Cat.5, Cat.6, Cat.7, screened, unscreened) for patch cords for NEXT and return loss	3
Figure 3 – Correct pairing	5
Figure 4 – Incorrect pairing	6
Figure 5 – Fixture for cable assembly flexure test	7
Figure 6 – Bending test: assembly in U shape	10
Figure 7 – Twisting test: assembly in U shape	11
Figure 8 – Fixture for cable crushing test	12
Figure 9 – Measuring device	14
Figure 10 – Centring of NEXT properties of the modular 8-pin test head	16

Currently in preview, click buy full version

INTRODUCTION

Modular plug cords are constructed for connecting equipment using modular connecting hardware. It is known that connecting hardware performance is subject to influence by the properties of the modular plug termination and, therefore, modular plug cords should be tested to determine the quality of the assembly. Moreover, the performance of modular plug cords may differ due to the performances of the separate components involved depending upon the efficiency of the manufacturing procedure. Manufacturing procedures also have an impact on the reliability of these cords. This part of IEC 61935 provides test methods to ensure the compatibility of modular plug cords to be used in cabling according to ISO/IEC 11801. It also provides test methods and associated requirements to demonstrate the performance and reliability of these cords during their operational lifetime.

Currently in preview, click buy full version

AUSTRALIAN/NEW ZEALAND STANDARD

**TESTING OF BALANCED COMMUNICATION CABLING
IN ACCORDANCE WITH ISO/IEC 11801 –****Part 2: Patch cords and work area cords****1 Scope**

This part of IEC 61935 provides methods to ensure the compatibility of modular plug cords to be used in cabling according to ISO/IEC 11801 and provides test methods and associated requirements to demonstrate the performance and reliability of these cords during their operational lifetime.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-61, *Environmental testing – Part 2-61: Test methods – Test Z/ABDM: Climatic sequence*

IEC 60603-7 (all parts), *Connectors for frequencies below 5 MHz for use with printed boards – Part 7: Detail specification for connectors, 8-way, including fixed and free connectors with common mating features, with assessed quality*

IEC 61076-3-104: *Connectors for electronic equipment – Part 3-104: Rectangular connectors – Detail specification for 8-way shielded fixed and fixed connectors for data transmissions with frequencies up to 600 MHz minimum*

IEC 61156 (all parts), *Multicore and symmetrical pair/quad cables for digital communications*

IEC 61935-1, *Testing of balanced communication cabling in accordance with ISO/IEC 11801 – Part 1: Installed cabling*

IEC 62153-4-7 *Metallic communication cable test methods – Part 4-7: Electro Magnetic Compatibility (EMC) – Shielded screening attenuation test method for measuring the transfer impedance Z_{tr} and the screening attenuation a_s or the Coupling attenuation a_c of RF-Connectors and Assemblies up to and above 3 GHz¹*

ISO/IEC 11801, *Information technology – Generic cabling for customer premises*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61935-1 apply.

¹ To be published.