

Australian/New Zealand Standard™

**Telecommunications installations—
Generic cabling systems**

**Part 2: Specification for the testing of
patch cords in accordance with
AS/NZS 3080**

[Generic cabling systems—Specification for the testing of balanced communication cabling in accordance with ISO/IEC 11801—Part 2: Patch cords and work area cords]

AS/NZS 3087.2:2003

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 21 November 2003 and on behalf of the Council of Standards New Zealand on 27 November 2003. It was published on 22 December 2003.

The following are represented on Committee CT-001:

Australian Chamber of Commerce and Industry
Australian Communications Authority
Australian Communications Industry Forum
Australian Electrical and Electronic Manufacturers Association
Australian Information Industry Association
Australian Telecommunications Users Group
BICSI Australia
Electrical Compliance Testing Association
Electrical Regulatory Authorities Council
Electricity Supply Association of Australia
Institution of Engineers Australia
National Electrical and Communications Association
New Zealand Consulting Interests
New Zealand Defence Force
Plastics and Chemicals Industries Association
Singtel Optus
Telecom New Zealand
Telstra Corporation
Vendor Interests New Zealand

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all 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 Standards may also be withdrawn.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 Australia web site 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 International or Standards New Zealand at the address shown on the back cover.

Australian/New Zealand Standard™

Telecommunications installations— Generic cabling systems

Part 2: Specification for the testing of patch cords in accordance with AS/NZS 3080

Originated as part of AS/NZS 3087:2000.
Jointly revised and redesignated in part as AS/NZS 3087.2:2003.

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 International Ltd, GPO Box 5420, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 5631 X

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CT-001, Communications Cabling.

This Standard is identical with, and has been reproduced from, IEC 61935-2:2003, *Generic cabling systems—Specification for the testing of balanced communication cabling in accordance with ISO/IEC 11801—Part 2: Patch cords and work area cords*.

The objective of this Standard is to provide methods to ensure compatibility of modular plug cords to be used in cabling according to AS/NZS 3080 and also provides test methods and associated requirements to demonstrate the performance and reliability of these cords during their operational lifetime.

This Standard is Part 2 of AS/NZS 3087 *Telecommunications installations—Generic cabling systems* which is published in parts as follows:

Part 1: Specification for the testing of balanced communication cabling

Part 2: Specification for the testing of patch cords in accordance with AS/NZS 3080 (this Standard)

In this Standard, the following print types are used:

- (a) requirements proper: in arial type;
- (b) *test specifications: in italic type*
- (c) explanatory matter: in smaller arial type.

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

- (i) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (ii) In the source text ‘this part of IEC 61935’ should read ‘this part of AS/NZS 3087’.
- (iii) A full point should be substituted for a comma when referring to a decimal marker.
- (iv) Any French text on figures should be ignored.

CONTENTS

	<i>Page</i>
1 Scope	1
2 Normative references	1
3 Definitions	1
4 General requirements and test configuration	1
4.1 Cable and connector design	1
4.2 Cable and connector tests	2
4.3 Test configuration and equipment	2
4.4 Modular plug cord tests requirements	3
4.5 Pass/fail test limits	3
5 Acceptance tests	3
5.1 Visual inspection	3
5.2 Wire map	4
5.3 Propagation delay	5
5.4 Delay skew	5
5.5 Insertion loss/operational attenuation	5
5.6 Return loss	5
5.6.1 Object	5
5.6.2 Test method	5
5.6.3 Test set-up	5
5.6.4 Procedure	6
5.6.5 Test report	7
5.6.6 Accuracy of return loss measurements	7
5.6.7 Requirements	8
5.7 Near End Crosstalk Attenuation (NEXT)	8
5.7.1 Modular plug cord test procedure	9
6 Periodic tests	10
6.1 General	10
6.2 Tensile strength	10
6.2.1 Object	10
6.2.2 Procedure	10
6.2.3 Requirements	11
6.2.4 Detail specification	11
6.3 Flexure	11
6.3.1 Object	11
6.3.2 Procedure	11
6.3.3 Requirements	11
6.3.4 Information to be given in the detail specification	11
6.4 Bending/twisting	12
6.4.1 Object	12
6.4.2 Procedures	12
6.4.3 Requirements	13

6.5	Crushing	13
6.5.1	Object	13
6.5.2	Procedure.....	13
6.5.3	Requirements	14
6.5.4	Information to be given in the detail specification.....	14
6.6	Dust test.....	14
6.6.1	Object	14
6.6.2	Procedure.....	14
6.6.3	Requirements	15
6.6.4	Information to be given in the detail specification.....	15
6.6.5	Test chamber	15
6.7	Coupling attenuation	16
6.8	Climatic sequence:	16
6.8.1	Object	16
6.8.2	Procedure.....	16
6.8.3	Requirements	16
6.8.4	Information to be given in the detail specification.....	16
7	Test head requirements.....	17
7.1	General.....	17
7.2	Compliance with category 6 requirements	17
7.3	Additional FEXT requirements	17
7.4	Additional return loss requirements	17
7.5	NEXT loss centring requirements	17
7.6	Adjustment of connector NEXT assumptions	18
Figure 1	– Transmission performance test configuration for patch cords	2
Figure 2	– Correct pairing	4
Figure 3	– Incorrect pairing	4
Figure 4	– Test arrangement for the return loss	5
Figure 5	– TDR response	6
Figure 6	– Calibration procedure.....	7
Figure 7	– Network analyzer configuration	10
Figure 8	– Fixture for cable assembly flexure test	11
Figure 9	– Bending test: assembly in U shape	12
Figure 10	– Twisting test: assembly in U shape	13
Figure 11	– Fixture for cable crushing test	14
Figure 12	– Measuring device	16
Figure 13	– Centring of NEXT properties of the test head	18
Table 1	– Uncertainty band of return loss measurement.....	7

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Telecommunications installations—Generic cabling systems
Part 2: Specification for the testing of patch cords in accordance with
AS/NZS 3080**

1 Scope

This part of IEC 61935 provides methods to ensure compatibility of modular plug cords to be used in cabling according to ISO/IEC 11801 and also 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 60068-2-61:1991, Environmental testing – Part 2-61: Test methods – Test Z/ABDM: Climatic sequence

IEC 60603-7, Connectors for frequencies below 3 MHz for use with printed boards

IEC 60603-7-4, Connectors for electronic equipment – Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz (CAT 6, unshielded)¹

IEC 61156, Multicore and symmetrical pair/quad cables for digital communications

IEC 61935-1:2000, Generic cabling systems – Specification for the testing of balanced communication cabling in accordance with ISO/IEC 11801 – Part 1: Installed cabling

ISO/IEC 11801:2002, Information technology – Generic cabling for customer premises

3 Definitions

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

4 General requirements and test configuration**4.1 Cable and connector design**

The design of the cables and connectors should conform to the applicable parts of IEC 61156 and IEC 60603 respectively as referred to into the ISO/IEC 11801.

¹ To be published.