

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Specification for the testing of balanced and coaxial information technology cabling –

Part 2: Cords as specified in ISO/IEC 11801 and related standards

Spécification relative aux essais des câblages symétriques et coaxiaux des technologies de l'information –

Partie 2: Cordons tels que spécifiés dans l'ISO/CEI 11801 et normes associées



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

ICS 33.040.20; 33.120.20

ISBN 978-2-88912-001-7

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATION FOR THE TESTING OF BALANCED AND COAXIAL INFORMATION TECHNOLOGY CABLING –

Part 2: Cords as specified in ISO/IEC 11801 and related standards

FOREWORD

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International Standard IEC 61935-2 has been prepared by IEC technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

This third edition cancels and replaces the second edition published in 2005.

This third edition of IEC 61935-2 differs from the second edition in that it covers category 6_A to category 7_A cords as defined in ISO/IEC 11801.

The text of this standard is based on the following documents:

FDIS	Report on voting
46/351/FDIS	46/364/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61935 series, under the general title: *Specification for the testing of balanced and coaxial information technology cabling*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Balanced cords are constructed for connecting equipment using free connectors according to IEC 60603-7 series, IEC 61076-3-104 and IEC 61076-3-110. It is known that connecting hardware performance is subject to influence by the properties of the free connector termination and therefore balanced cords should be tested to determine the quality of the assembly. Moreover, the performance of balanced cords may differ due to the performances of the involved separate components depending upon the efficiency of the manufacturing procedure. Manufacturing procedures also impact upon the reliability of these balanced cords. Therefore, the primary object of this standard is to provide test methods to ensure compatibility of balanced cords to be used in cabling according to ISO/IEC 11801. Another object is to provide test methods and associated requirements to demonstrate the performance and reliability of these balanced cords during their operational lifetime.

The test methods described in this standard may also be used for any balanced cords that include twisted pairs terminated at each end.

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SPECIFICATION FOR THE TESTING OF BALANCED AND COAXIAL INFORMATION TECHNOLOGY CABLING –

Part 2: Cords as specified in ISO/IEC 11801 and related standards

1 Scope

This International Standard provides methods to ensure compatibility of balanced 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 balanced cords during their operational lifetime. This International Standard may also be used for providing test methods for assessing the behaviour of other balanced cords.

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: Test methods – Test Z/AMB: Climatic sequence*

IEC 60603-7 (all parts), *Connectors for electronic equipment – Part 7: Detail specifications*

IEC 60603-7:2008, *Connectors for electronic equipment – Part 7: Detail specification for 8-way, unshielded, free and fixed connectors*

IEC 60603-7-51, *Connectors for electronic equipment – Part 7-51: Detail specification for 8-way, shielded, free and fixed connectors, for data transmission with frequencies up to 500 MHz*

IEC 61076-3-104, *Connectors for electronic equipment – Product requirements – Part 3-104: Detail specification for 8-way, shielded free and fixed connectors for data transmissions with frequencies up to 1000 MHz*

IEC 61076-3-110, *Connectors for electronic equipment – Product requirements – Part 3-110: Rectangular connectors – Detail specification for shielded, free and fixed connectors for data transmission with frequencies up to 1000 MHz*

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

IEC 61156-1, *Multicore and symmetrical pair/quad cables for digital communications – Part 1: Generic specification*

IEC 61156-6, *Multicore and symmetrical pair/quad cables for digital communications – Part 6: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz – Work area wiring – Sectional specification*

IEC 61935-1:2009, *Specification for the testing of balanced and coaxial information technology cabling – Part 1: Installed balanced cabling as specified in ISO/IEC 11801 and related standards*

IEC 612153-4-11, *Metallic communication cable test methods – Part 4-11: Electromagnetic compatibility (EMC) – Coupling attenuation or screening attenuation of patch cords, coaxial cable assemblies, pre-connectorized cables – Absorbing clamp method*

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 and the following apply.

3.1 cord

a cable assembly as defined in IEC 61935-1 whatever its targeted use

NOTE In this document, the usage of balanced cord covers, amongst others, work area cord, patch cord and equipment cord. The terminology “modular plug cord” is an alternative expression.

4 General requirements and test configuration

4.1 Cable and connector design

When compliance with ISO/IEC 11801 is required, the design of the cables and connectors should conform to the applicable parts of IEC 61156 and IEC 60603-7, IEC 61076-3-110 and IEC 61076-3-104 respectively.

4.2 Balanced cord, cable and connector tests

For balanced cords complying with ISO/IEC 11801, cables and connectors used in cable assemblies should be assessed separately in accordance with IEC 61156-1 and IEC 60603-7, IEC 61076-3-104 or IEC 61076-3-110 respectively. These component tests do not need to be repeated on the balanced cord, but the terminated contact height should be assessed (e.g. dimension K2 of Table 1 of IEC 60603-7).

For other cords, the cables and connectors shall be assessed separately according to their respective standard unless there are no component standards. In this case, all tests will be performed on the cords, including interface tests. The acceptance tests described in this document shall be performed on a balanced cord on a lot-by-lot basis.

The periodic tests described in this document are type tests that have to be performed according to the quality system of the manufacturer.

4.3 Test configuration and equipment

The reference measurement procedures that are described in this standard require the use of a network analyser, coaxial interface cables, r.f. transformers (baluns), twisted pair test leads and impedance matching terminations. Refer to IEC 61935-1 for requirements of test equipment, including baluns (see 4.2.6 of IEC 61935-1). The nominal impedance for the test set-up and the terminations is 100 Ω . The same tests may be used for 120 Ω and 150 Ω cords, but the measurement methods have not been evaluated for these nominal impedance values.