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# INTERNATIONAL STANDARD

**Multicore and symmetrical pair/quad cables for digital communications - Part 11: Symmetrical single pair cables with transmission characteristics up to 1,25 GHz - Horizontal floor wiring - Sectional specification**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# Multicore and symmetrical pair/quad cables for digital communications - Part 11: Symmetrical single pair cables with transmission characteristics up to 1,25 GHz - Horizontal floor wiring - Sectional specification

## FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

**This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.**

**IEC 61156-11 edition 2.1 contains the second edition (2023-05) [documents 46C/1254/FDIS and 46C/1258/RVD] and its amendment 1 (2025-06) [documents 46C/1301/CDV and 46C/1314/RVC].**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**

IEC 61156-11 has been prepared by subcommittee 46C: Wires and symmetric cables, of IEC technical committee 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories. It is an International Standard.

This second edition cancels and replaces the first edition published in 2019. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) additional cable type in support of T1-C generic single pair cabling up to 1,25 GHz;
b) introduction of low frequency coupling attenuation as an integral parameter describing screening efficiency at frequencies below 30 MHz.

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---|---|
| 46C/1254/FDIS | 46C/1258/RVD |

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61156 series, published under the general title *Multicore and symmetrical pair/quad cables for digital communications*, can be found on the IEC website.

The committee has decided that the contents of this document and its amendment will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION to Amendment 1

Since the development of IEC 61156-11:2023, the naming convention of the proposed generic single pair cabling channels has changed. To update the document to the latest naming convention is the main background of this amendment. "T1-C" changes to "T1-B" and "T1-D" changes to "T1-C".

Additionally, a typo in Table 1, which shows requirements for transfer impedance, is corrected and the requirements below 1 MHz are defined more clearly.

Finally, an item in the Bibliography is updated.

## 1 Scope

This part of IEC 61156 ~~describes~~ specifies cables intended to be used for single balanced pair ~~(~~cabling for office, home~~,~~ and industrial~~) applications according to~~ application described in ISO/IEC 11801-1:2017 and ISO/IEC 11801-1/AMD1[1]. An example of existing application is 1000BASE-T1, see ISO/IEC TR 11801-9906. The transmission characteristics of these cables are specified up to a frequency of 1,25 GHz and at a temperature of 20 °C. The T1-~~C~~B type cable is specified up to 600 MHz, the T1-~~D~~C type cable up to 1,25 GHz. Depending on the MICE environment and the installation conditions, either unscreened or screened cables can be used. A blank detail specification can be found in Annex A.

These cables can comprise more than one pair in the event that several systems are operated in parallel. In this case, refer to Clause 7.

The cables covered by this document are intended to operate with voltages and currents normally encountered in communication systems. While these cables are not intended to be used in conjunction with low impedance sources, for example the electric power supplies of public utility mains, they are intended to be used to support the delivery of low-voltage remote powering applications.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60708, *Low-frequency cables with polyolefin insulation and moisture barrier polyolefin sheath*

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

IEC 61156-5, *Multicore and symmetrical pair/quad cables for digital communications – Part 5: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz – Horizontal floor wiring – Sectional specification*

IEC 62153-4-3, *Metallic communication cable test methods – Part 4-3: Electromagnetic compatibility (EMC) – Surface transfer impedance – Triaxial method*

IEC 62153-4-5, *Metallic communication cables test methods – Part 4-5: Electromagnetic compatibility (EMC) – Screening or coupling attenuation – Absorbing clamp method*

IEC 62153-4-9:2018, *Metallic communication cable test methods – Part 4-9: Electromagnetic compatibility (EMC) – Coupling attenuation of screened balanced cables, triaxial method*
IEC 62153-4-9:2018/AMD1:2020

ISO/IEC TS 29125, *Information technology – Telecommunications cabling requirements for remote powering of terminal equipment*

[1] Under preparation. Stage at the time of publication: ISO/IEC CCDV 11801-1:2017/AMD1:2024.

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Finally, an item in the Bibliography is updated.

## 1 Scope

This part of IEC 61156 specifies cables intended to be used for single balanced pair cabling for office, home and industrial application described in ISO/IEC 11801-1:2017 and ISO/IEC 11801-1/AMD1[1]. An example of existing application is 1000BASE-T1, see ISO/IEC TR 11801-9906. The transmission characteristics of these cables are specified up to a frequency of 1,25 GHz and at a temperature of 20 °C. The T1-B type cable is specified up to 600 MHz, the T1-C type cable up to 1,25 GHz. Depending on the MICE environment and the installation conditions, either unscreened or screened cables can be used. A blank detail specification can be found in Annex A.

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IEC 62153-4-9:2018/AMD1:2020

ISO/IEC TS 29125, *Information technology – Telecommunications cabling requirements for remote powering of terminal equipment*

[1] Under preparation. Stage at the time of publication: ISO/IEC CCDV 11801-1:2017/AMD1:2024.