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Metallic communication cable test methods – Part 4-1: Electromagnetic compatibility (EMC) – Introduction to electromagnetic (EMC) screening measurements

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

METALLIC COMMUNICATION CABLE TEST METHODS –

Part 4-1: Electromagnetic compatibility (EMC) – Introduction to electromagnetic (EMC) screening measurements

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IEC/TR 62153-4-1, which is a technical report, has been prepared by IEC technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

This second edition cancels and replaces the first edition published in 2007. The significant change is a new clause on the background of the shielded screening attenuation test method.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
46/331/DTR	46/350/RVC

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

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

A list of all parts of the IEC 62153 series, under the general title: *Metallic communication cable test methods*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date 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- withdrawn,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.

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METALLIC COMMUNICATION CABLE TEST METHODS –

Part 4-1: Electromagnetic compatibility (EMC) – Introduction to electromagnetic (EMC) screening measurements

1 Scope

Screening (or shielding) is one basic way of achieving electromagnetic compatibility (EMC). However, a confusingly large number of methods and concepts is available to test for the screening quality of cables and related components, and for defining their quality. This technical report gives a brief introduction to basic concepts and terms trying to reveal the common features of apparently different test methods. It should assist in correct interpretation of test data, and in the better understanding of screening (or shielding) and related specifications and standards.

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 60096-1:1986, *Radio-frequency cables – Part 1: General requirements and measuring methods*
Amendment 2 (1993)

IEC 60096-4-1, *Radio-frequency cables – Part 4: Specification for superscreened cables – Section 1: General requirements and test methods*

IEC 60169-1-3, *Radio frequency connectors – Part 1: General requirements and measuring methods – Section 3: Electrical tests and measuring procedures – Screening effectiveness*

IEC 61196-1:1995, *Radiofrequency cables – Part 1: Generic specification – General, definitions, requirements and test methods*

IEC 61726, *Cable assemblies, cables, connectors and passive microwave components – Screening attenuation measurement by the reverberation chamber method*

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

IEC 62153-4-4, *Metallic communication cable test methods – Part 4-4: Electromagnetic compatibility (EMC) – Shielded screening attenuation, test method for measuring of the screening attenuation a_s up to and above 3 GHz*

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

EN 50289-1-6, *Communication cables – Specification for test methods – Electrical test methods – Electromagnetic performance*