



BSI Standards Publication

Metallic communication cable test methods

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

National foreword

This Published Document is the UK implementation of IEC TS 62153-4-1:2014+A1:2020. It supersedes PD IEC/TR 62153-4-1:2010, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee EPL/46, Cables, wires and waveguides, radio frequency connectors and accessories for communication and signalling.

A list of organizations represented on this committee can be obtained on request to its secretary.

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© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 539 02845 4

ICS 33.100.01; 33.100.10; 33.120.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 May 2020.

Amendments/ corrigenda issued since publication

| Date | Text affected |
|------|---------------|
|------|---------------|



IEC TS 62153-4-1

Edition 1.1 2020-05

TECHNICAL SPECIFICATION



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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.100.10

ISBN 978-2-8322-8341-7

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

METALLIC COMMUNICATION CABLE TEST METHODS –**Part 4-1: Electromagnetic compatibility (EMC) –
Introduction to electromagnetic screening measurements**

FOREWORD

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

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

IEC TS 62153-4-1:2014+A1:2020
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This first edition of technical specification IEC/TS 62153-4-1 cancels and replaces the second edition of the technical report IEC/TR 62153-4-1 published in 2010. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to IEC/TR 62153-4-1:

- a) comparison of the frequency response of different triaxial test set-ups to measure the transfer impedance of cable screens;
- b) background of the shielded screening attenuation test method (IEC 62153-4-4);
- c) background of the shielded screening attenuation test method for measuring the screening effectiveness of feed-throughs and electromagnetic gaskets (IEC 62153-4-10);
- d) background of the shielded screening attenuation test method for measuring the screening effectiveness of RF connectors and assemblies (IEC 62153-4-7).

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

| | |
|---------------|------------------|
| Enquiry draft | Report on voting |
| 46/465/DTS | 46/492/RVC |

Full information on the voting for the approval of this technical specification 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

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition,
- 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

This part of IEC 62153 deals with screening measurements. 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 specification gives a brief introduction to basic concepts and terms trying to reveal the common features of apparently different test methods. It is intended to 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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*¹

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

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

IEC 61196-1:2005, *Coaxial communication cables - Part 1: Generic specification - General, definitions and requirements*

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

IEC 62153-4-2, *Metallic communication cable test methods - Part 4-2: Electromagnetic compatibility (EMC) - Screening and coupling attenuation - Injection clamp method*

IEC 62153-4-3, *Metallic communication cable 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 as up to and above 3 GHz*

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

¹ This publication has been withdrawn.