

# FINAL VERSION

# VERSION FINALE



**Metallic communication cable test methods –  
Part 4-10: Electromagnetic compatibility (EMC) – Transfer impedance and  
screening attenuation of feed-throughs and electromagnetic gaskets – Double  
coaxial test method**

**Méthodes d'essai des câbles métalliques de communication –  
Partie 4-10: Compatibilité électromagnétique (CEM) – Impédance de transfert et  
affaiblissement d'écran des traversées et des joints d'étanchéité  
électromagnétiques – Méthode d'essai coaxiale double**

## CONTENTS

|   |    |
|---|----|
| FOREWORD .....  | 4  |
| 1 Scope .....   | 6  |
| 2 Normative references .....  | 6  |
| 3 Terms and definitions .....   | 6  |
| 4 Principle of the test method .....  | 9  |
| 5 Procedure.....  | 12 |
| 5.1 Equipment .....   | 12 |
| 5.2 Dynamic range.....  | 12 |
| 5.3 Verification of the test set-up .....   | 12 |
| 5.4 Sample preparation.....   | 12 |
| 6 Measurement.....  | 12 |
| 6.1 General.....  | 12 |
| 6.2 Screening attenuation .....   | 12 |
| 6.3 Transfer impedance .....  | 12 |
| 7 Expression of results .....   | 13 |
| 7.1 Transfer impedance .....  | 13 |
| 7.2 Screening attenuation .....   | 13 |
| 7.3 Requirements .....  | 13 |
| Annex A (informative) Background for the measurement of the shielding effectiveness<br>of feed-throughs and electromagnetic gaskets ..... | 14 |
| A.1 General.....  | 14 |
| A.2 Theoretical model of the test procedure .....   | 15 |
| A.3 Performing measurements .....   | 16 |
| A.3.1 Characteristic impedance uniformity of the test fixture .....   | 16 |
| A.3.2 Measuring EMI-gaskets by using a NWA .....  | 16 |
| A.3.3 Pictures and measurement results .....  | 17 |
| Annex B (informative) Reference device for verification measurement .....   | 23 |
| B.1 General.....  | 23 |
| B.2 Design of the reference device.....   | 23 |
| B.3 Verification measurement result.....  | 24 |
| Annex C (informative) Impact of ground loops on low frequency measurements .....  | 25 |
| C.1 General.....  | 25 |
| C.2 Analysis of the test set-up.....  | 25 |
| Annex D (informative) Measurement of the transfer impedance of conductive gaskets<br>with controlled contact pressure.....                | 28 |
| D.1 General.....  | 28 |
| D.2 Measuring equipment and auxiliary measuring devices .....   | 28 |
| D.3 Test setup.....   | 28 |
| D.4 Test specimen .....   | 29 |
| D.5 Measurement procedure .....   | 30 |
| D.5.1 Test method A: matched RF-generator and test receiver .....   | 30 |
| D.5.2 Test method B: un-matched NWA measurement .....   | 30 |
| D.5.3 Both methods .....  | 30 |
| D.6 Expression of results .....   | 31 |
| D.6.1 Method A: matched RF-generator and test receiver measurement .....  | 31 |

|  |    |
|--|----|
| D.6.2 Method B: un-matched NWA measurement.....  | 31 |
| Bibliography.....  | 32 |
| Figure 1 – A two-port .....  | 7  |
| Figure 2 – Equivalent circuit of the test set-up and definition of $Z_T$ .....                                 | 7  |
| Figure 3 – Cross-section of a typical feed-through configuration .....   | 10 |
| Figure 4 – Cross-section of the test fixture with a connector .....  | 10 |
| Figure 5 – Cross-section of the test fixture with an electromagnetic gasket.....                               | 11 |
| Figure A.1 – Cross-section of a typical feed-through configuration.....  | 14 |
| Figure A.2 – Cross-section of the test fixture with a connector .....  | 15 |
| Figure A.3 – Equivalent circuit of the test setup with the shunt admittance $y$ of the feed-through .....      | 15 |
| Figure A.4 – TDR step response at input-port of test fixture .....   | 16 |
| Figure A.5 – View of the test fixture connected to a network analyzer .....                                    | 18 |
| Figure A.6 – Top view of the test fixture .....  | 18 |
| Figure A.7 – Detailed view of the contact area .....   | 18 |
| Figure A.8 – Detailed view of the captivation for the conductive O-ring test.....                              | 19 |
| Figure A.9 – Isolation of the network analyzer.....  | 20 |
| Figure A.10 – Isolation of the test fixture when characterizing an ideal short (metal plate) .....             | 20 |
| Figure A.11 – Measured operational screening transmission when characterizing a typical conductive O-ring..... | 21 |
| Figure A.12 – Transfer impedance $Z_T$ of a typical conductive O-ring.....                                     | 21 |
| Figure A.13 – Screening attenuation $a_s$ of a typical conductive O-ring .....                                 | 22 |
| Figure B.1 – Reference device, e.g. resistors soldered onto a PCB.....   | 23 |
| Figure B.2 – Typical verification measurement result .....   | 24 |
| Figure C.1 – Double coaxial test set-up .....  | 25 |
| Figure C.2 – Equivalent circuits of the double coaxial test set-up.....  | 26 |
| Figure C.3 – Results obtained with (green) and without ferrites on the test leads (blue).....                  | 27 |
| Figure D.1 – Test set-up .....   | 28 |
| Figure D.2 – Details of the test fixture.....  | 29 |
| Figure D.3 – Specimen size and shape .....   | 30 |
| Table D.1 – Specimen size .....  | 29 |

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### METALLIC COMMUNICATION CABLE TEST METHODS –

#### **Part 4-10: Electromagnetic compatibility (EMC) – Transfer impedance and screening attenuation of feed-throughs and electromagnetic gaskets – Double coaxial test method**

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**IEC 62153-4-10 edition 2.1 contains the second edition (2015-11) [documents 46/563/FDIS and 46/580/RVD] and its amendment 1 (2020-07) [documents 46/736/CDV and 46/769/RVC].**

**This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.**

International Standard IEC 62153-4-10 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 constitutes a technical revision.

The main technical changes with regard to the previous edition are as follows:

- addition of a new clause that describes a procedure for verification of the measurement set-up and further information regarding sample preparation;
- addition of a new Annex that describes how to improve measurement certainty in the very low frequency area.

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 the base publication and its amendment 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.

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## METALLIC COMMUNICATION CABLE TEST METHODS –

### Part 4-10: Electromagnetic compatibility (EMC) – Transfer impedance and screening attenuation of feed-throughs and electromagnetic gaskets – Double coaxial test method

#### 1 Scope

This part of IEC 62153 details a coaxial method suitable for determining the transfer impedance and/or screening attenuation of feed-throughs and electromagnetic gaskets.

The shielded screening attenuation test set-up according to IEC 62153-4-4 (triaxial method) has been modified to take into account the particularities of feed-throughs and gaskets.

A wide dynamic and frequency range can be applied to test even super screened feed-throughs and gaskets with normal instrumentation from low frequencies up to the limit of defined transversal waves in the coaxial circuits at approximately 4 GHz.

#### 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.

Void.

#### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

##### 3.1

**operational (Betriebs) transfer function in the forward direction**  $H_{B21}$

**operational (Betriebs) scattering parameter**  $S_{21}$

quotient of the reflected square root of power wave fed into the reference impedance of the output of the two-port and the unreflected square root of the power wave consumed at the input of the two-port

EXAMPLE (see Figure 1)