SLOVENSKI STANDARD
SIST EN 62153-4-7:2007

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Preskušalne metode za kovinske komunikacijske kable – 4-7. del: Elektromagnetna združljivost (EMC) – Preskušalna metoda za meritve prehodne impedance in zaslanjanja – ali sklopnega slabljenja– Metoda cev v cevi (IEC 62153-4-7:2006)

Metallic communication cables test methods -- Part 4-7: Electromagnetic compatibility (EMC) - Test method for measuring the transfer impedance and the screening - or the coupling attenuation - Tube in tube method (IEC 62153-4-7:2006)

Prüfverfahren für metallische Kommunikationskabel -- Teil 4-7: Elektromagnetische Verträglichkeit (EMV) - Messverfahren zur Messung der Kopplungswiderstandes und der Schirmdämpfung oder der Kopplungsdämpfung - Rohr-im-Rohr-Verfahren (IEC 62153-4-7:2006)

Méthodes d'essai des câbles métalliques de communication -- Partie 4-7: Compatibilité électromagnétique (CEM) - Méthode d'essai pour mesurer l'impédance de transfert et l'affaiblissement d'écran - ou l'affaiblissement de couplage - Méthode des tubes concentriques (IEC 62153-4-7:2006)

Ta slovenski standard je istoveten z: **EN 62153-4-7:2006**

ICS:

33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general
33.120.10	Koaksialni kabli. Valovodi	Coaxial cables. Waveguides

SIST EN 62153-4-7:2007 **en,fr,de**

EUROPEAN STANDARD

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Metallic communication cables test methods Part 4-7: Electromagnetic compatibility (EMC) - Test method for measuring the transfer impedance and the screening - or the coupling attenuation - Tube in tube method

(IEC 62153-4-7:2006)

Méthodes d'essai des câbles métalliques de communication Partie 4-7: Compatibilité électromagnétique (CEM) - Méthode d'essai pour mesurer l'impédance de transfert et l'affaiblissement d'écran - ou l'affaiblissement de couplage - Méthode des tubes concentriques (CEI 62153-4-7:2006)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 62153-4-7:2006 E

Foreword

The text of the International Standard IEC 62153-4-7:2006, prepared by SC 46A, Coaxial cables, of IEC TC 46, Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories, was submitted to the formal vote and was approved by CENELEC as EN 62153-4-7 on 2006-08-01 without any modification.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2007-08-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-08-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62153-4-7:2006 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 61196-1	2005	Coaxial communication cables Part 1: Generic specification - General, definitions and requirements	-	-
IEC 62153-4-4	2006	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	-	-
-	-	Communication cables - Specifications for test methods Part 1-6: Electrical test methods - Electromagnetic performance	EN 50289-1-6	2002

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Méthodes d'essai des câbles métalliques de communication –

Partie 4-7: Compatibilité électromagnétique (CEM) – Méthode d'essai pour mesurer l'impédance de transfert et l'affaiblissement d'écran – ou l'affaiblissement de couplage – Méthode des tubes concentriques

Metallic communication cables test methods –

Part 4-7: Electromagnetic compatibility (EMC) – Test method for measuring the transfer impedance and the screening – or the coupling attenuation – Tube in tube method

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Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

METALLIC COMMUNICATION CABLE TEST METHODS –

Part 4-7: Electromagnetic compatibility (EMC) – Test method for measuring the transfer impedance and the screening – or the coupling attenuation – Tube in tube method

FOREWORD

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International Standard IEC 62153-4-7 has been prepared by subcommittee 46A: Coaxial cables, of IEC technical committee 46: Cables, wires, waveguides, r.f. connectors, r.f. and microwave passive components and accessories.

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

FDIS	Report on voting
46A/797/FDIS	46A/414/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.

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

IEC 62153 consists of the following parts, under the general title *Metallic communication cable test methods:*

Part 1-1: Electrical − Measurement of the pulse/step return loss in the frequency domain using the Inverse Discrete Fourier Transformation (IDFT)

Part 1-2: Reflection measurement correction [1]

Part 4-0: Electromagnetic Compatibility (EMC) − Relationship between Surface transfer impedance and Screening attenuation, recommended limits [1]

Part 4-1: Electromagnetic Compatibility (EMC) − Introduction to electromagnetic (EMC) screening measurements [1]

Part 4-2: Electromagnetic compatibility (EMC) − Screening and coupling attenuation − Injection clamp method

Part 4-3: Electromagnetic Compatibility (EMC) − Surface transfer impedance − Triaxial method

Part 4-4: Electromagnetic Compatibility (EMC) − Shielded screening attenuation, test method for measuring of the screening attenuation "as " up to and above 3 GHz

Part 4-5: Electromagnetic Compatibility (EMC) − Coupling or screening attenuation − absorbing clamp method

Part 4-6: Electromagnetic Compatibility (EMC) − Surface transfer impedance − line injection method

Part 4-7: Electromagnetic Compatibility (EMC) – Part 4-7: Electromagnetic compatibility (EMC) – Test method for measuring the transfer impedance and the screening – or the coupling attenuation –Tube in tube method

Part 4-8: Electromagnetic Compatibility (EMC) – Capacitive Coupling Admittance [1]

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

1 Under consideration.

INTRODUCTION

The shielded screening attenuation test set-up according to IEC 62153-4-4 (triaxial method) has been extended to take into account the particularities of electrical short elements like connectors and cable assemblies. Due to the concentric outer tube of the triaxial set-up, measurements are independent of irregularities on the circumference and outer electromagnetic fields.

With the use of an additional resonator tube (inner tube respectively tube in tube) a system is created where the screening effectiveness of an electrically short device is measured in realistic and controlled conditions. Also a lower cut off frequency for the transition between electrically short (transfer impedance Z_T) and electrically long (screening attenuation a_s) can be achieved.

A wide dynamic and frequency range can be applied to test even super screened connectors and assemblies with normal instrumentation from low frequencies up to the limit of defined transversal waves in the outer circuit at approximately 4 GHz.

METALLIC COMMUNICATION CABLE TEST METHODS –

Part 4-7: Electromagnetic compatibility (EMC) – Test method for measuring the transfer impedance and the screening – or the coupling attenuation – Tube in tube method

1 Scope

This triaxial method is suitable to determine the surface transfer impedance and/or screening attenuation and coupling attenuation of mated screened connectors (including the connection between cable and connector) and cable assemblies. This method could also be extended to determine the transfer impedance, coupling or screening attenuation of balanced or multipin connectors and cable assemblies.

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

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*[2]

3 Terms and definitions

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

3.1
surface transfer impedance
Z_T
for an electrically short screen, quotient of the longitudinal voltage U_1 induced to the inner circuit by the current I_2 fed into the outer circuit or vice versa [Ω] (see Figure 1)

The value Z_T of an electrically short screen is expressed in ohms [Ω] or decibels in relation to 1 Ω.

[2] To be published