

**METALL-SIDEKAABLITE KATSETUSMEETODID.  
OSA 4-7: ELEKTROMAGNETILINE ÜHILDUVUS.  
SAGEDUSELE KUNI 3 GHz JA ÜLE SELLE ETTE NÄHTUD  
LIIDESTE JA KOOSTETE ÜLEKANDEIMPEDANTSI  $Z_T$ ,  
VARJESTUSSUMBUVUSE  $a_s$  JA SIDESTUSSUMBUVUSE  $a_c$   
MÕÕTMISE KATSETUSMEETOD.  
KOLMETELJELINE MEETOD "TORU TORUS"**

**Metallic communication cable test methods –  
Part 4-7: Electromagnetic compatibility (EMC) –  
Test method for measuring of transfer impedance  $Z_T$   
and screening attenuation  $a_s$  or coupling attenuation  $a_c$   
of connectors and assemblies up to and above 3 GHz –  
Triaxial tube in tube method  
(IEC 62153-4-7:2015)**

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN 62153-4-7:2016 sisaldab Euroopa standardi EN 62153-4-7:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 62153-4-7:2016 consists of the English text of the European standard EN 62153-4-7:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

**Metallic communication cable test methods -  
Part 4-7: Electromagnetic compatibility (EMC) - Test method for  
measuring of transfer impedance  $Z_T$  and screening attenuation  
 $a_s$  or coupling attenuation  $a_c$  of connectors and assemblies up to  
and above 3 GHz - Triaxial tube in tube method  
(IEC 62153-4-7:2015)**

Méthodes d'essai des câbles métalliques de communication  
- Partie 4-7: Compatibilité électromagnétique (CEM) -  
Méthode d'essai pour mesurer l'impédance de transfert  $Z_T$   
et l'affaiblissement d'écrantage  $a_s$  ou l'affaiblissement de  
couplage  $a_c$  des connecteurs et des cordons jusqu'à 3 GHz  
et au-dessus - Méthode triaxiale en tubes concentriques  
(IEC 62153-4-7:2015)

Prüfverfahren für metallische Kommunikationskabel -  
Teil 4-7: Geschirmtes Prüfverfahren zur Messung von  
Kopplungswiderstand  $Z_T$  und von Schirm  $a_s$ - oder  
Kopplungsdämpfung  $a_c$  von HF-Steckverbindern und  
konfektionierten Kabeln bis zu und über 3 GHz - Rohr-im-  
Rohr-Verfahren  
(IEC 62153-4-7:2015)

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European Committee for Electrotechnical Standardization  
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Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

## European foreword

The text of document 46/572/FDIS, future edition 2 of IEC 62153-4-7, prepared by IEC/TC 46 "Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62153-4-7:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-10-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-01-13

This document supersedes EN 62153-4-7:2006.

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TS 62153-4-1	-	Metallic communication cable test methods - - Part 4-1: Electromagnetic compatibility (EMC) - Introduction to electromagnetic screening measurements		-
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 62153-4-15	-	Metallic communication cable test methods - - Part 4-15: Electromagnetic compatibility (EMC) - Test method for measuring transfer impedance and screening attenuation - or coupling attenuation with triaxial cell		-

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## INTRODUCTION

The shielded screening attenuation test set-up according to IEC 62153-4-3 and IEC 62153-4-4 have been extended to take into account the particularities of electrically 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.