

SLOVENSKI STANDARD

SIST EN 60512-25-9:2009

01-februar-2009

Konektorji za elektronsko opremo - Preskušanje in meritve - 25-9. del: Preskusi celovitosti signala (signalne integritete) - Preskus 25i: Tuji presluh (IEC 60512-25-9:2008)

Connectors for electronic equipment - Tests and measurements - Part 25-9: Signal integrity tests - Test 25i: Alien crosstalk (IEC 60512-25-9:2008)

Steckverbinder für elektronische Einrichtungen - Mess- und Prüfverfahren - Teil 25-9: Signalintegritätsprüfungen - Prüfung 25i: Externes Nebensprechen (Alien Crosstalk) (IEC 60512-25-9:2008)

Connecteurs pour équipements électroniques - Essais et mesures - Partie 25-9: Essais d'intégrité des signaux - Essai 25i: Diaphonie exogène (CEI 60512-25-9:2008)

Ta slovenski standard je istoveten z: EN 60512-25-9:2008

ICS:

31.220.10 Xã sã Ácã } s^EMA[} ^\q | h Plug-and-socket devices.
Connectors

SIST EN 60512-25-9:2009

en,fr

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 60512-25-9:2009
<https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb-ab794292361a/sist-en-60512-25-9-2009>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60512-25-9

November 2008

ICS 31.220.10

English version

**Connectors for electronic equipment -
Tests and measurements -
Part 25-9: Signal integrity tests -
Test 25i: Alien crosstalk
(IEC 60512-25-9:2008)**

Connecteurs pour équipements
électroniques -
Essais et mesures -
Partie 25-9: Essais d'intégrité des signaux -
Essai 25i: Diaphonie exogène
(CEI 60512-25-9:2008)

Steckverbinder für elektronische
Einrichtungen -
Mess- und Prüfverfahren -
Teil 25-9: Signalintegritätsprüfungen -
Prüfung 25i: Externes Nebensprechen
(Alien Crosstalk)
(IEC 60512-25-9:2008)

**ITEH STANDARD PREVIEW
(standards.iteh.ai)**

[SIST EN 60512-25-9:2009](https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb-)

<https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb->

This European Standard was approved by CENELEC on 2008-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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

Foreword

The text of document 48B/1915/FDIS, future edition 1 of IEC 60512-25-9, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60512-25-9 on 2008-11-01.

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) 2009-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2011-11-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60512-25-9:2008 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-1 NOTE Harmonized as EN 60068-1:1994 (not modified).

ISO/IEC 11801 NOTE In Europe the subject is covered by the series EN 50173, *Information technology - Generic cabling systems* ~~SIST EN 60512-25-9:2009~~
<https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb-ab794292361a/sist-en-60512-25-9-2009>

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-581	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 581: Electromechanical components for electronic equipment	-	-
IEC 60512-26-100	- ¹⁾	Connectors for electronic equipment - Tests and measurements - Part 26-100: Measurement setup, test and reference arrangements and measurements for connectors according to IEC 60603-7 - Tests 26a to 26g	EN 60512-26-100	2008 ²⁾
IEC 60603-7	Series	Connectors for electronic equipment - Part 7: Detail specification for 8-way, unshielded, free and fixed connectors	EN 60603-7	Series
IEC 60603-7-4	2005	Connectors for electronic equipment - Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz	EN 60603-7-4	2005
IEC 61076-3-104	2006	Connectors for electronic equipment - Product requirements - Part 3-104: Detail specification for 8-way, shielded free and fixed connectors for data transmissions with frequencies up to 1 000 MHz	EN 61076-3-104	2006
IEC 61156	Series	Multicore and symmetrical pair/quad cables for digital communications	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 60512-25-9:2009
<https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb-ab794292361a/sist-en-60512-25-9-2009>



INTERNATIONAL STANDARD

NORME INTERNATIONALE

Connectors for electronic equipment – Tests and measurements –
Part 25-9: Signal integrity tests – Test 25i: Alien crosstalk
(standards.iec.ch)

Connecteurs pour équipements électroniques – Essais et mesures –
Partie 25-9: Essais d'intégrité des signaux – Essai 25i: Diaphonie exogène
ab794292361a/sist-en-60512-25-9-2009

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

R

ICS 31.220.10

ISBN 2-8318-9971-0

CONTENTS

FOREWORD	3
1 Scope and object	5
2 Normative references	5
3 Terms and definitions	5
4 Overview	6
4.1 Procedure	6
4.2 Resources	7
5 Overall test arrangement	7
5.1 General	7
5.2 Terminations	8
5.3 Pairs of connectors to test	8
6 Procedure to test alien crosstalk from one connector to another connector	10
6.1 Calibration	10
6.2 Measurement (noise) floor	10
6.3 Alien crosstalk measurement	10
7 Procedure for determining significance	11
8 Details to be specified in the detail specification	12
9 Power sum calculation, report and documentation	12
Annex A (informative) Flow chart for obtaining alien crosstalk performance data	13
Annex B (informative) Illustrations of alien crosstalk testing using coaxial switching	14
Bibliography	18
SIST EN 60512-25-9:2009 https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb-ab794292361a/sist-en-60512-25-9-2009	
Figure 1 – Schematic for testing without a switch	8
Figure 2 – Schematic for terminations	8
Figure 3 – Connector array	9
Figure 4 – Test directions	11
Figure A.1 – Flowchart for the test procedure	13
Figure B.1 – Schematic for testing with a switch	14
Figure B.2 – Example network analyzer, switch, and fixture with 8 baluns in 2 clusters	15
Figure B.3 – Example of fixture, in which balun clusters can slide left and right	16
Figure B.4 – Post can rotate three different directions	17

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTORS FOR ELECTRONIC EQUIPMENT –
TESTS AND MEASUREMENTS –Part 25-9: Signal integrity tests –
Test 25i: Alien crosstalk

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60512-25-9 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

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

FDIS	Report on voting
48B/1915/FDIS	48B/1930/RVD

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

A list of all parts of IEC 60512 series, under the general title *Connectors for electronic equipment – Tests and measurements*, can be found on the IEC website.

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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 60512-25-9:2009](https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb-ab794292361a/sist-en-60512-25-9-2009)
[https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb-
ab794292361a/sist-en-60512-25-9-2009](https://standards.iteh.ai/catalog/standards/sist/a46e8b3a-3b96-40ec-a5fb-ab794292361a/sist-en-60512-25-9-2009)

CONNECTORS FOR ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 25-9: Signal integrity tests – Test 25i: Alien crosstalk

1 Scope and object

This part of IEC 60512 defines a test method which is intended to assess the near-end alien crosstalk (ANEXT) and the far-end alien crosstalk (AFEXT) between connectors in close proximity, when mounted in their mounting systems. Both discrete modular connectors and multi-port panel connectors may be tested using this method. This method provides a means to test the alien (exogenous) crosstalk between any two ports, as well as a means to assess the overall alien crosstalk from all other ports. This test procedure is generally applicable to any electrical connector, and is particularly suitable to connectors described in IEC 60603-7 series, IEC 61076-3-104, and other types of connectors for data transmission.

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 60050-581, *International Electrotechnical Vocabulary (IEV) – Chapter 581: Electromechanical components for electronic equipment* 5e8b3a-3b96-40ec-a5fb-ab794292361a/sist-en-60512-25-9-2009

IEC 60512-26-100, *Connectors for electronic equipment – Tests and measurement – Part 26-100: Measurement setup, test and reference arrangements and measurements for connectors according to IEC 60603-7 (tests 26a to 26g)*

IEC 60603-7-4:2005, *Connectors for electronic equipment – Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz*

IEC 60603-7 (all parts), *Connectors for electronic equipment – Part 7: Detail specifications for 8-way, (un)shielded, free and fixed connectors, for data transmissions*

IEC 61076-3-104:2006, *Connectors for electronic equipment – Part 3-104: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 1000 MHz*

IEC 61156, *Multicore and symmetrical pair/quad cable for digital communications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-581 apply as well as the following.

3.1

alien (exogenous) crosstalk (AXT)

signal coupling from disturbing conductor pairs into a disturbed pair of another connector