

Connectors for electronic equipment — Tests and measurements —

Part 25-2: Test 25b: Attenuation (insertion loss)

The European Standard EN 60512-25-2:2002 has the status of a British Standard

ICS 31.220.10

National foreword

This British Standard is the official English language version of EN 60512-25-2:2002. It is identical with IEC 60512-25-2:2002.

The UK participation in its preparation was entrusted by Technical Committee EPL/48, Electromechanical components and mechanical structures for electronic equipment, to Subcommittee EPL/48/2, Connectors for electronic equipment, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 9 July 2002

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 14, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

© BSI 9 July 2002

ISBN 0 580 39945 1

**Connectors for electronic equipment -
Tests and measurements
Part 25-2: Test 25b: Attenuation (insertion loss)
(IEC 60512-25-2:2002)**

Connecteurs pour équipements
électroniques -
Essais et mesures
Partie 25-2: Essai 25b: Atténuation
(perte d'insertion)
(CEI 60512-25-2:2002)

Steckverbinder für elektronische
Einrichtungen -
Mess- und Prüfverfahren
Teil 25-2: Prüfung 25b: Dämpfung
(Einfügedämpfung)
(IEC 60512-25-2:2002)

This European Standard was approved by CENELEC on 2002-05-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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/1154/FDIS, future edition 1 of IEC 60512-25-2, 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 60512-25-2 on 2002-05-01.

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) 2003-02-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-05-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex A is normative and annex B is informative.

Endorsement notice

The text of the International Standard IEC 60512-25-2:2002 was approved by CENELEC as a European Standard without any modification.

CONTENTS

1	General	4
1.1	Scope.....	4
1.2	Definitions	7
2	Test resources	4
2.1	Equipment	4
2.2	Fixture.....	5
3	Test specimen	6
3.1	Description	6
4	Test procedure	6
4.1	Fixture attenuation	6
4.2	Specimen attenuation measurement.....	7
4.3	Impedance analyzer (open/short method).....	8
4.4	Additional measurements	8
4.5	Time domain method	8
5	Details to be specified	9
6	Test documentation	9
	Annex A (normative) Diagrams and schematics of fixtures and equipment.....	10
	Annex B (informative) Practical guidance.....	14
	Figure A.1 – Technical diagrams.....	10
	Figure A.2 – Single-ended terminations	11
	Figure A.3 – Differential (balanced) terminations	12
	Figure A.4 – Example of specimen in fixture for attenuation	13

CONNECTORS FOR ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 25-2: Test 25b – Attenuation (insertion loss)

1 General

1.1 Scope and object

This part of IEC 60512 is applicable to electrical connectors, sockets, cable assemblies or interconnection systems.

This standard describes a frequency and a time domain method to measure attenuation/insertion loss as a function of frequency.

NOTE “Attenuation” is referenced throughout the document. Test professionals must use the appropriate term (attenuation or insertion loss) when summarizing and reporting the test measurements according to the type of specimen and transmission line being measured.

1.2 Definitions

For the purpose of this part of IEC 60512, the following definitions apply.

1.2.1

attenuation

the reduction of power during the transmission from the input to the output of the specimen, usually measured in decibels (dB)

1.2.2

insertion loss

the loss of power resulting from the insertion of a connector or similar device into a transmission line, usually measured in dB

1.2.3

specimen environment impedance

the impedance presented to the signal conductors by the fixture. This impedance is a result of transmission lines, termination resistors, attached receivers or signal sources, and fixture parasitics

2 Test resources

2.1 Equipment

2.1.1 Frequency domain

A network analyzer is preferred. When a greater dynamic range is desired, a signal generator and spectrum analyzer or vector network analyser (for measurement with full 2-port calibration) may alternatively be used. If necessary, additional equipment increasing the measurement sensitivity (e.g. broadband output amplifiers or low-noise pre-amplifiers) may be used. For differential measurements, a multiport network analyzer with appropriate software or baluns may be used.