IEC 61300-2-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-1: Tests – Vibration (sinusoidal)

Dispositifs d'interconnexion et composants passifs fibroniques – Procédures fondamentales d'essais et de mesures – Partie 2-1: Essais – Vibrations (sinusoïdales)

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CONTENTS

FOREWORD 3
1 Scope 5
2 Normative references 5
3 Terms and definitions 5
4 General description 5
5 Apparatus 6
5.1 General 6
5.2 Vibration generator 6
5.3 Mounting fixture 6
5.4 Acceleration monitoring device 6
5.5 Measuring equipment 6
6 Procedure 6
6.1 Preparation of DUT 6
6.2 Preconditioning 6
6.3 Initial examination and measurement 6
6.4 Mounting and test procedure 7
6.5 Monitoring 7
6.6 Recovery 7
6.7 Final examination and measurement 7
7 Severity 8
8 Details to be specified and reported 10
Bibliography 11

Figure 1 – Example of vibration apparatus 7

Table 1 – Recommended values of the test parameters for connectors and passive components 8
Table 2 – Recommended values of the test parameters for fibre management systems 8
Table 3 – Recommended values of the test parameters for mechanical splices and field mountable connectors 8
Table 4 – Recommended values of the test parameters for wall outlets and optical distribution frame modules 9
Table 5 – Recommended values of the test parameters for hardened optical connectors 9
Table 6 – Recommended values of the test parameters for boxes and closures 9
Table 7 – Recommended values of the test parameters for street cabinets 9

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 2-1: Tests – Vibration (sinusoidal)

FOREWORD

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IEC 61300-2-1 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical change with respect to the previous edition: harmonizing with the test conditions in IEC 61753-1:2018 and revising severities.

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The text of this International Standard is based on the following documents:

Draft	Report on voting
86B/4692/FDIS	86B/4724/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of IEC 61300 series, published under the general title *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 2-1: Tests – Vibration (sinusoidal)

1 Scope

This part of IEC 61300 evaluates the effects of vibration on fibre optic devices at the predominant frequency ranges and magnitudes that are encountered during field service on attenuation.

NOTE Most vibrations encountered in service are not of a simple harmonic nature. However, it has been shown that tests based on vibrations of this type are satisfactory to simulating actual service.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 61300-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 1: General and guidance*

IEC 61300-3-1, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-1: Examinations and measurements – Visual examination*

IEC 61300-3-28, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-28: Examinations and measurements – Transient loss*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61300-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

4 General description

This procedure is derived from IEC 60068-2-6, test Fc. The device under test (DUT) is mounted on a vibration generator and vibrated with a sinusoidal motion. The DUT is exposed to vibration in three mutually perpendicular directions, one of which is parallel to the optical axis. The vibration amplitude is specified either in terms of constant displacement or constant acceleration.

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5 Apparatus

5.1 General

The apparatus shall be in accordance with IEC 60068-2-6, test Fc, and consists of the following elements.

5.2 Vibration generator

A vibration generator capable of generating a sinusoidal excitation and its auxiliary test equipment.

5.3 Mounting fixture

A suitable DUT mounting fixture capable of transmitting the vibration conditions specified shall be used. The mounting fixture shall be designed so that the resonant vibration inherent in the fixture shall not have an effect on the specified frequency range.

5.4 Acceleration monitoring device

The amplitude and the acceleration of the applied vibration shall be monitored by an acceleration monitoring device, i.e. accelerometer on the mounting fixture near the DUT.

5.5 Measuring equipment

The transient loss measurement equipment specified in IEC 61300-3-28 shall be connected to the DUT and used to detect fast variation of attenuation during and after the test, unless otherwise specified in the relevant specification.

6 Procedure

6.1 Preparation of DUT

Prepare the DUT according to the manufacturer's instructions and as specified in the relevant specification.

6.2 Preconditioning

Precondition the DUT for more than or equal to 2 h at the standard atmospheric conditions specified in IEC 61300-1, unless otherwise specified in the relevant specification.

6.3 Initial examination and measurement

Complete initial examinations and measurements of the DUT as required by the relevant specification.

Unless otherwise specified, visually examine the DUT in accordance with IEC 61300-3-1. Check for evidence of any degradation in the DUT. The following are possible examples of degradation:

– broken, loose or damaged parts or accessories;
– breaking or damage to the cable jacket, seals, strain relief, or fibres;
– displaced, bent, broken or chipped parts.

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