SLOVENSKI STANDARD
oSIST prEN IEC 61300-2-26:2022

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Naprave za spajanje optičnih vlaken in pasivne komponente - Osnovni preskusni in merilni postopki - 2-26. del: Preskusi - Slana megla

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-26: Tests - Salt mist

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Grundlegende Prüf- und Messverfahren - Teil 2-26: Prüfungen - Salznebel

Dispositifs d'interconnexion et composants passifs à fibres optiques - Méthodes fondamentales d'essais et de mesures - Partie 2-26: Essais - Brouillard salin

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COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 86B : FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS

SECRETARIAT: Japan	SECRETARY: Mr Shigeru Tomita
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

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TITLE:

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-26: Tests - Salt mist

PROPOSED STABILITY DATE: 2032

NOTE FROM TC/SC OFFICERS:

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-26: Tests – Salt mist

FOREWORD

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International Standard IEC 61300-2-26 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of clause 3, Terms and definitions;
b) harmonisation with IEC 61753-1:2018 and addition of Table 2;
c) harmonisation with IEC 60068-2-11:2021.

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

FDIS	Report on voting
86B/XXXX/FDIS	86B/XXXX/RVD

85
86 Full information on the voting for the approval of this standard can be found in the report on
87 voting indicated in the above table.

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

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

92 The committee has decided that the contents of this publication will remain unchanged until the
93 maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data
94 related to the specific publication. At this date, the publication will be

95 • reconfirmed;
96 • withdrawn;
97 • replaced by a revised edition, or
98 • amended.

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES – Part 2-26: Tests – Salt mist

1 Scope

This part of IEC 61300 provides a test to determine the corrosion resistance of the metals used in the construction of fibre optic interconnecting devices and passive components which include connectors, field mountable connectors (FMC), passive components, splices, hardened connectors, street cabinets, boxes and closures. This document determines if dissimilar metals have been well finished to prevent corrosion. The requirements of the tests for these devices are defined in IEC 61753-1.

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 60068-2-11, *Environmental testing – Part 2: Tests – Test Ka: Salt mist*

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

IEC 61300-2-38, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-38: Tests – Sealing for pressurized fibre optic closures*

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 61300-3-4, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-4: Examinations and measurements – Attenuation*

IEC 61300-3-6, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-6: Examinations and measurements – Return 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 terminological 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 conducted in accordance with IEC 60068-2-11, test Ka. The device under test (DUT) is exposed to a salt mist environment within a test chamber maintained at a temperature of 35 °C.

WARNING – This document can involve hazardous materials, operations and equipment. This document does not purpose to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices ad determine the applicability of regulatory limitations prior to use.

The relationship between the deterioration provided by this test and long-term exposure of products to salt laden atmospheres cannot be readily determined. But it provides a useful means of comparing resistance of products to deterioration from salt laden atmospheres.

5 Salt solution

5.1 Preparation of salt solution

Dissolve a sufficient mass of sodium chloride in distilled or deionized water with a conductivity not higher than 20 μS/cm at (25 ± 2) °C to produce a concentration of (50 ± 5) g/l. The sodium chloride concentration of the sprayed solution collected shall be (50 ± 5) g/l. The specific gravity range for a (50 ± 5) g/l solution is 1,029 to 1,036 at 25 °C.

The sodium chloride shall not contain a mass fraction of the heavy metals copper (Cu), nickel (Ni), and lead (Pb) in total more than 0,005 %. It shall not contain a mass fraction of sodium iodide more than 0,1 % and a mass fraction of total impurities more than 0,5 %, calculated for dry salt.

5.2 pH adjustment

If necessary, adjust the pH of the salt solution so that pH of the sprayed solution collected within the test chamber is 6,5 to 7,2 at (25 ± 2) °C. Check the pH using electrometric measurement. Measurements of pH shall be done using electrodes suitable for measuring in weakly buffered sodium chloride solution in deionized water.

Make any necessary corrections by adding hydrochloric acid, sodium hydroxide or sodium bicarbonate solution of analytical grade.

5.3 Filtration

If necessary, filter the solution before placing it in the reservoir of the apparatus, to remove any solid matter which might block the apertures of spraying device.

5.4 Re-use

The sprayed solution shall not be re-used.

6 Apparatus

6.1 Chamber

The chamber for this test shall be constructed of such materials that will not influence the corrosive effects of the salt mist.

The detailed construction of the chamber, including the method of producing the mist, is optional, provided that:

a) the operating conditions in the chamber shall be within the limits specified;
b) the chamber shall have sufficient volume and performance that the introduction of the DUTs will not detrimentally affect the control of the conditions;
c) the solution shall not be sprayed directly onto the DUTs but rather spread throughout the test detrimentally after the control of the conditions;

d) the upper parts of the chamber shall be designed so that drops of sprayed solution formed on its surface do not fall on the DUTs being tested;

e) the chamber shall be properly vented to prevent pressure build-up and allow uniform distributed of salt mist. The discharge end of the vent shall be protected from strong air currents which can have a negative effect to the air flow;

f) the test temperature shall be measured at least 100 mm from walls and radiant heat sources.

6.2 Atomizer

The atomizer(s) used shall be of such design and construction as to produce a finely divided, wet, dense mist. The atomizer(s) shall be made of material that is non-reactive to the salt solution.

6.3 Air supply

The compressed air entering the atomizer(s) shall be essentially free from all impurities, such as oil and dust.

Means shall be provided to humidify and warm the compressed air as required to meet the operating conditions. The atomizing pressure shall be at an over pressure of 70 kPa to 170 kPa. The pressure is typically (98 ± 10) kPa but can vary depending on the type of the chamber and atomizer used. The appropriate temperature depends on the pressure used and on the type of atomizer. Temperature, pressure or humidification, or a combination thereof, shall be adjusted so that the rate of collection of the spray in the chamber and the concentration of the collected spray are kept within the specified limits. A commonly used humidifier is the saturation tower, where temperature and pressure are controllable. Table 1 gives suggested values on temperature and pressure combinations for the saturation tower. Distilled or deionized water with a conductivity not higher than 20 mS/cm at (25 ± 2) °C shall be used for humidification of spray air.

Table 1 – Suggested values for the temperature of the hot water in the saturation tower

Atomizing overpressure kPa	Suggested values for the temperature of the hot water in the saturation tower when performing the salt mist test °C
70	45
84	46
98	48
112	49
126	50
140	52
160	53
170	54

6.4 Collecting devices

At least two collecting devices shall be used to check the homogeneity of the spray of the chamber. A collecting device shall consist of a collecting funnel which has a diameter of 100 mm ± 2 mm, corresponding to a collecting area of approximately 80 cm^2. The funnel should be mate of chemically inert material and its stem inserted into a suitable measuring container.

7 Verification of the corrosivity of the apparatus

The corrosivity of the apparatus, especially the chamber should be verified at regular intervals to check the reproducibility of the test results. IEC 60068-2-11 describes the detail information. A suitable method for evaluating corrosivity of the apparatus by use of a reference DUT.

8 DUT

The number and type of DUT, their shape and their dimensions shall be selected in accordance with the relevant specification.

9 Procedure

9.1 Preparation of DUT

Prepare the DUT in accordance with the manufacturer's instructions.

Visually check by IEC 61300-3-1 that the attachment of the cable to the fibre optic device is not damaged.

9.2 Preconditioning

The relevant specification shall specify the cleaning method to be applied immediately before the test. The cleaning method used shall not interfere with the effect of the salt mist on the DUT.

Expose the DUT for at least 2 h at the standard atmospheric conditions as defined in IEC 61300-1, unless otherwise specified in the relevant specification.

9.3 Initial examinations and measurements

Complete initial visual examinations and measurements on the DUT as required by the relevant specification. IEC 61300-3-1 and, IEC 61300-3-4 and IEC 61300-3-6 shall be referred for the visual examinations, and the measurements of attenuation and return loss, respectively, unless otherwise stated in the relevant specification.

9.4 Conditioning

Conduct the procedure in accordance with IEC 60068-2-11, test Ka. The angle at which the surface of the DUT is exposed in the chamber is very important. Unless otherwise specified, DUTs shall be mounted at an angle of 20 ° ± 2 ° to the vertical, with the area of primary interest facing up.

Unless otherwise specified, the DUT shall be subjected to the test in a non-operational mode.

Stabilize the chamber and the DUT to standard atmospheric conditions. Place the DUT in the chamber in its normal operating position including hook-ups to peripheral equipment (when required).

Adjust the chamber temperature, humidity, salt concentration and pH to the specified severity.

Table 2 summarises the test conditions.