

INTERNATIONAL STANDARD

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Optical fibre cables –
Part 1-220: Generic specification – Basic optical cable test procedures –
Environmental test methods – Salt spray corrosion test, method F20

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Câbles à fibres optiques –
Partie 1-220: Spécification générique – Procédures fondamentales d'essais
des câbles optiques – Méthodes d'essais environnementaux – Essai de
corrosion au brouillard salin, méthode F20





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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.180.10

ISBN 978-2-8322-1085-6

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

**Part 1-220: Generic specification –
Basic optical cable test procedures – Environmental test methods –
Salt spray corrosion test, method F20**

FOREWORD

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IEC 60794-1-220 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.

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

Draft	Report on voting
86A/2179/FDIS	86A/2188/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/standardsdev/publications.

A list of all parts in the IEC 60794 series, published under the general title *Optical fibre cables*, 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- withdrawn,
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OPTICAL FIBRE CABLES –

Part 1-220: Generic specification – Basic optical cable test procedures – Environmental test methods – Salt spray corrosion test, method F20

1 Scope

This part of IEC 60794 defines a test standard to determine the ability of an optical fibre cable to withstand the effects of a controlled salt atmosphere.

This document applies to optical ground wire (OPGW) and optical phase conductor (OPPC). An optical ground wire and optical phase conductor are made of multiple metallic wires that are exposed to the environment without any insulating or protective sheath and contain optical fibres.

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

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Salt spray corrosion test

4.1 Object

The object of this test is to determine any effects of a controlled salt atmosphere on a cable.

4.2 Sample

Three cable samples of 75 cm ± 5 cm shall be cut from the reel. Heat shrink tubing or silicone seal shall be placed over both ends of the cable to a distance not to exceed 7,5 cm ± 0,5 cm from either end of the cable sample.

4.3 Apparatus

The salt-spray testing apparatus shall comply with IEC 60068-2-11.

4.4 Procedure

4.4.1 General

The test shall be carried out according to the test method in IEC 60068-2-11.

4.4.2 Pre-test cleaning and handling

During cutting and preparation of the test samples, ensure that no contamination or debris are introduced onto the surface of the cable samples.

Samples shall not be disassembled, and they shall be cleaned to remove chemical contaminants and completely dried before the test.

Optionally, samples may be cleaned using forced air supply to remove any foreign particles from the surface. This may not be applicable for greased cable designs.

4.4.3 Conditioning

The cable samples shall be arranged in the salt spray-testing chamber as defined by IEC 60068-2-11 to simulate a standard horizontally suspended cable. Samples shall be mounted at an angle between 15° and 30° to the vertical.

The test is to run continuously for 1 000 h for salt spray testing.

4.4.4 Post-test cleaning and handling

Unless otherwise specified, the cable samples shall be carefully removed from the chamber, with care not to damage or disturb the tested samples.

Samples may be gently washed or dipped in clean running water not warmer than 38 °C (100 °F) to remove salt deposits from the surface, and then immediately dried.

4.4.5 Visual inspection

Samples shall be inspected as soon as possible once removed from the chamber.

Samples shall be inspected with the unaided eye. A low magnification lens may be used for the suspect areas.

Samples with heavier salt deposits may be lightly brushed to remove the surface deposits while ensuring the underlying metallic surface is not disturbed.

In the event suspect locations are found in more than two locations, additional detailed inspections may be warranted under higher magnification.

Samples sent for additional detailed inspection shall not be disturbed any way (i.e. no brushing).

4.5 Requirements

At the end of the test, the cables shall be removed and dissected for corrosion damage. The cables have passed the test if

- there are no locations where the aluminium-clad steel wires have been pitted so as to expose the underlying steel strength member in any way what so ever,
- there are no locations where the solid aluminium wires have been point pitted beyond a depth of 10 % of the total individual wires diameter at the point of the pit,
- there is no damage to the optical fiber unit (e.g. material loss, point pitting beyond a depth of 10 % of the tube thickness, deformation of the tube or any other condition that may affect the performance of the fibers),
- in the case of aluminium coated tubing, there is no removal of the aluminium coating that exposes the underlying stainless steel tube, and
- in the case of "other" coated tubing, there is no removal of the coating that exposes the underlying tubing to the elements.

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