

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –

Part 3-22: Examinations and measurements – Ferrule compression force

**Dispositifs d'interconnexion et composants passifs à fibres optiques –
Méthodes fondamentales d'essais et de mesures –**

Partie 3-22: Examens et mesures – Force de compression des férules



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING DEVICES
AND PASSIVE COMPONENTS –
BASIC TEST AND MEASUREMENT PROCEDURES –****Part 3-22: Examinations and measurements –
Ferrule compression force**

FOREWORD

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International Standard IEC 61300-3-22 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition of IEC 61300-3-22 cancels and replaces the first edition published in 1997 and constitutes a technical revision. Changes from the previous edition include reconsideration of the procedure and the details to be specified.

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

FDIS	Report on voting
86B/3093/FDIS	86B/3131/RVD

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

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

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 publication will remain unchanged until the stability 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- withdrawn,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.

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

Part 3-22: Examinations and measurements – Ferrule compression force

1 Scope

This part of IEC 61300 describes the procedure to measure the spring-loaded force applied to a ferrule when the plugs mate with each other during normal service. This measurement procedure is applicable to a connector plug which has a spring-loaded ferrule.

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 61754 (all parts), *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces*

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3 Apparatus

[IEC 61300-3-22:2010](#)

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3.1 General

The device under test (DUT) is clamped and the ferrule compression force is measured when the ferrule end face is moved to a specified position.

3.2 Fixed clamping device

A fixed clamping device capable of gripping the device under test without altering any of its mechanical properties except for the position of the ferrule end face with respect to the connector mechanical reference.

3.3 Force generator

A force generator capable of smoothly applying the compressive force to the ferrule end face at the specified rate.

An example of suitable apparatus for this measurement is a compression tester. The apparatus is shown in Figure 1.

3.4 Position sensor

A suitable instrument for measuring the position of the ferrule end face when the compressive force is applied.

3.5 Force gauge

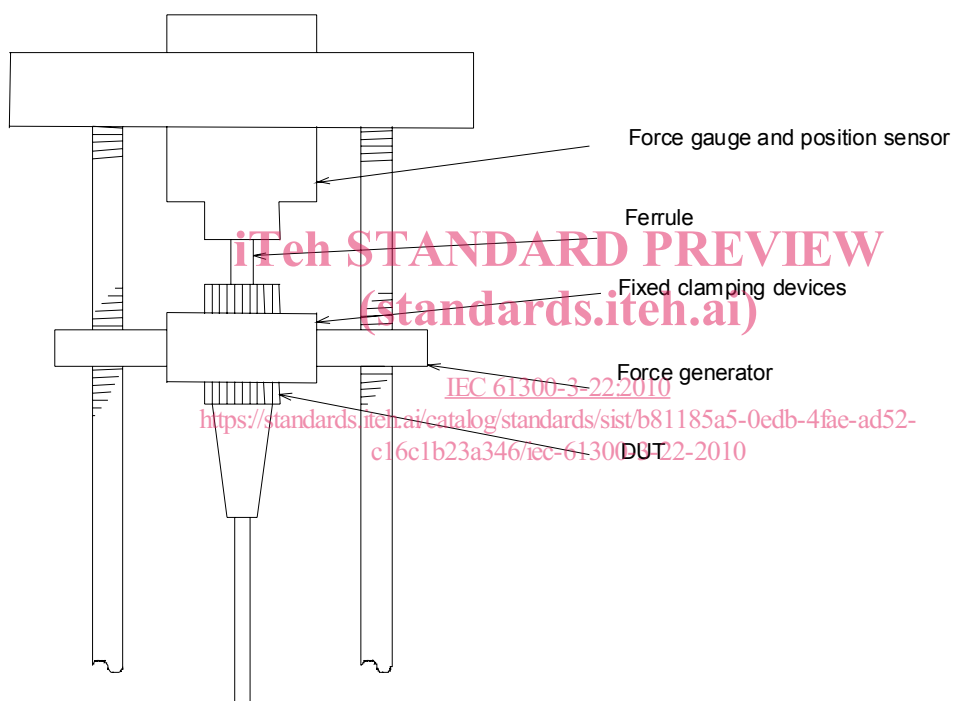
A suitable instrument for measuring the compressive force as applied to the ferrule end face.

4 Procedure

The device under test shall consist of a fully assembled optical component prepared in accordance with the manufacturer's instructions. Unless otherwise specified, the device under test shall be subjected to the following measurement procedure in a non-operational model.

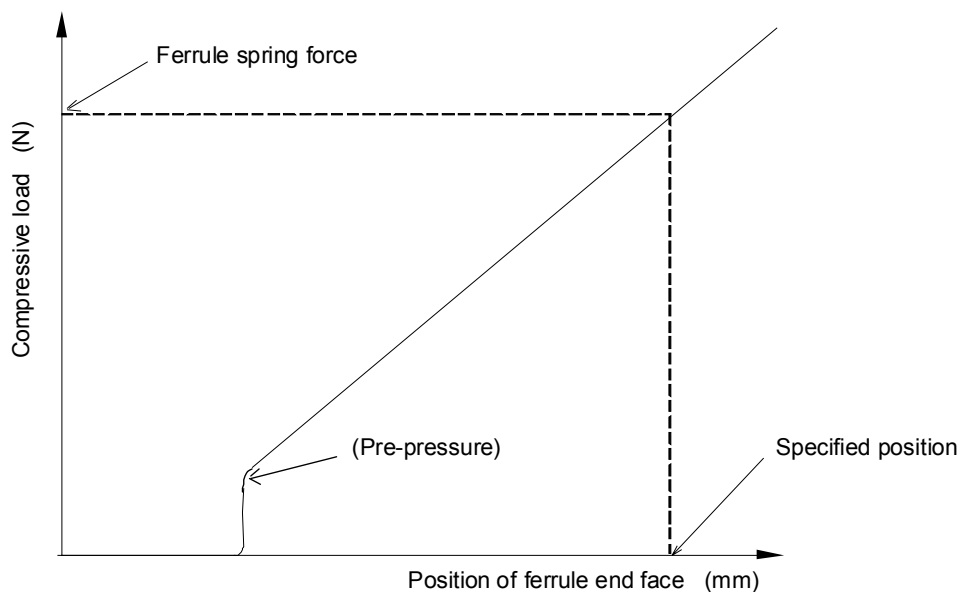
The procedure shall be carried out as follows.

- a) Securely fix the device under test to the fixed clamping device.
- b) Smoothly apply the axial compressive load to the ferrule at 5 mm/min until the ferrule end face is moved to the specified position.
- c) Measure the spring force when the ferrule end face is moved to the position as specified in the relevant mechanical interface document (IEC 61754 series). Figure 2 shows an example of ferrule compression force data in the case of a compression tester used as the apparatus.



IEC 2816/10

Figure 1 – Example of test apparatus



IEC 2817/10

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Figure 2 – Example of test data

5 Details to be specified

The following details, as applicable, shall be specified in the detail specification:

- a) performance requirements as specified in the IEC 61754 series;
- b) the position of the ferrule end face relative to mechanical reference plane of the connector, where ferrule compression force is measured; for example for LSH connectors (IEC 61754-15), the compression force shall be measured both when dimension M is compressed to 11,9 mm and to 12 mm;
- c) spring force requirements at ferrule end face position as specified in item b) of this clause;
- d) deviations from the test procedure;
- e) the type of cable, buffered fibre or primary coated fibre fitted to the connector.