

Fibre optic attenuators —

Part 1: Generic specification

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- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 26, an inside back cover and a back cover.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

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Foreword

The text of document 86B/1248/FDIS, future edition 3 of IEC 60869-1, prepared by SC 86B, Fibre optic interconnecting devices and passive components, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60869-1 on 1999-12-01.

This European Standard supersedes EN 180000:1995.

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) 2000-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2002-12-01

Annexes designated "normative" are part of the body of the standard.

In this standard, annex ZA is normative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60869-1:1999 was approved by CENELEC as a European Standard without any modification.

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INTRODUCTION

This part of IEC 60869 is divided into three clauses.

Clause 1 is entitled "General" and contains general information pertaining to this generic specification.

Clause 2 is entitled "Requirements" and contains all the requirements to be met by attenuators covered by this standard. This includes requirements for classification, the IEC specification system, documentation, materials, workmanship, quality, performance, identification, and packaging.

Clause 3 is entitled "Quality assessment procedures" and contains all of the procedures which must be followed for proper quality assessment of products covered by this standard.

FIBRE OPTIC ATTENUATORS –

Part 1: Generic specification

1 General

1.1 Scope

This part of IEC 60869 applies to fibre optic attenuators. These have all of the following general features:

- they are passive in that they contain no opto-electronic or other transducing elements;
- they have two ports for the transmission of optical power and attenuate the transmitted power in a fixed or variable fashion;
- the ports are optical fibres or optical fibre connectors.

This standard establishes uniform requirements for the following:

- attenuator requirements;
- quality assessment procedures.

This standard does not cover test and measurement procedures, which are described in IEC 61300-1, in the series IEC 61300-2 and the series 61300-3.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60869. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60869 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC QC 001001:1998, *Basic rules of the IEC Quality Assessment System for Electronic Components (IECQ)*

IEC QC 001002-2:1998, *Rules of Procedure of the IEC Quality Assessment System for Electronic Components (IECQ) – Part 2: Documentation*

IEC QC 001002-3:1998, *Rules of procedure of the IEC Quality Assessment System for Electronic Components (IECQ) – Part 3: Approval procedures*

IEC Guide 102:1996, *Electronic components – Specification structures for quality assessment (Qualification approval and capability approval)*

IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050(731):1991, *International Electrotechnical Vocabulary (IEV) – Chapter 731: Optical fibre communication*

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

IEC 60617 (all parts), *Graphical symbols for diagrams*

IEC 60695-2-2:1991, *Fire hazard testing – Part 2: Test methods – Section 2: Needle-flame test*

IEC 60825-1:1998, *Safety of laser products – Part 1: Equipment classification, requirements and user's guide*

ISO 129:1985, *Technical drawings – Dimensioning – General principles, definitions, methods of execution and special indications*

ISO 286-1:1988, *ISO system of limits and fits – Part 1: Bases of tolerances, deviations and fits*

ISO 370:1975, *Toleranced dimensions – Conversion from inches into millimetres and vice versa*

ISO/DIS 1101, *Geometrical Product Specifications (GPS) – Geometrical tolerancing – Generalities, definitions, symbols, indications on drawings*

ISO 8601:1988, *Data elements and interchange formats – Information interchange – Representation of dates and times*

1.3 Definitions

For the purpose of this part of IEC 60869, the definitions contained in IEC 60050(731) as well as the following definitions apply.

1.3.1

attenuator

passive component which produces a controlled signal attenuation in an optical fibre transmission line

1.3.2

fibre optic pigtail

short length of fibre, jumper or cable forming an optical port for a fibre optic component

1.3.3

port

optical fibre or optical fibre connector attached to a passive component for the entry and/or exit of optical power

1.3.4

attenuation

reduction in optical power between an input and output port of a passive component, expressed in decibel; it is defined as follows:

$$a = -10 \log (P_1/P_0)$$

where P_0 is the optical power launched into the input port, and P_1 the power received from the output port

1.3.5

attenuation value

term synonymous with insertion loss when applied to attenuators

1.3.6

minimum attenuation

term applicable only to variable attenuators; it is the lowest attenuation to which the device may be adjusted