

Fibre optic connector optical interfaces —

Part 1: Optical interfaces for single mode non-dispersion shifted fibres — General and guidance

The European Standard EN 61755-1:2006 has the status of a
British Standard

ICS 33.180.20

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 61755-1:2006, incorporating corrigendum December 2006. It is identical with IEC 61755-1:2005.

The UK participation in its preparation was entrusted by Technical Committee GEL/86, Fibre optics, to Subcommittee GEL/86/2, Interconnecting devices and passive components.

A list of organizations represented on GEL/86/2 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2006

© BSI 2007

ISBN 0 580 48308 8

Amendments issued since publication

Amd. No.	Date	Comments
16920 Corrigendum No. 1	28 February 2007	Change to EN foreword and addition of Annex ZA.

Fibre optic connector optical interfaces
Part 1: Optical interfaces for single mode non-dispersion shifted fibres -
General and guidance

Interfaces optiques avec connecteurs
pour fibres optiques
Partie 1: Interfaces optiques pour fibres
monomodales à dispersion non décalée -
Généralités et lignes directrices

Optische Schnittstellen
von Lichtwellenleiter-Steckverbindern
Teil 1: Optische Schnittstellen
von nicht-dispersionsverschobenen
Einmodenfasern -
Allgemeines und Leitfaden

This European Standard was approved by CENELEC on 2006-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

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

Foreword

The text of document 86B/2217/FDIS, future edition 1 of IEC 61755-1, 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 61755-1 on 2006-02-01.

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) 2006-11-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61755-1:2005 was approved by CENELEC as a European Standard without any modification.

CONTENTS

Introduction	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Document structure	8
5 Datum target	9
6 Test methods	9
7 Optical interface grades.....	9
8 Key parameters	10
9 Materials	12
 Annex ZA (normative) Normative references to international publications with their corresponding European publications	 14
 Bibliography	 13
 Figure 1–Relationship between optical interface standards and interface standards.....	 5
Figure 2 – Lateral offset and angular misalignment versus attenuation for a typical non-dispersion shifted single mode fibre	11
Figure 3 – High index layer refractive index and thickness versus return loss for a typical non-dispersion shifted single mode fibre	11
 Table 1 – Multi-part document structure	 8
Table 2 – Single mode attenuation grades at 1 310 nm and 1 550 nm (dB)	10
Table 3 – Single mode return loss grades at 1 310 nm and 1 550 nm (dB)	10
Table 4 – Examples of allowable end face condition versus return loss – single mode fibre .	12

Introduction

0.1 Overview

An optical interface standard is a multi-part collection of the physical and mechanical requirements necessary in order to comply with the optical functionality specifications for a defined interface between two optical fibres. It consists of those essential features that are functionally critical to the optical attenuation and return loss performance of an optical interface in the mated condition. This standard provides general information on singlemode optical interfaces, defining the location of the fibre core in relation to the datum target and the following key parameters: lateral offset, end face separation, end face angle, end face high index layer condition. It also defines standardised test methods where appropriate.

The subsequent parts of this series contain those optical interfaces that have been standardised for international use. Each interface contains the essential information to ensure that products conforming to the standard will work together repeatedly to a known level of optical performance without the need for compatibility testing or cross checking.

It is important to emphasise that standard optical interfaces are intended to be used with IEC standards of various categories, which already include:

- interface standards;
- test and measurement methods;
- performance standards;
- reliability standards;
- quality assurance standards.

Interface standards provide all the essential information about a given product type or family necessary to ensure that all products compliant with the interface standard will mate/de-mate.

Test and measurement methods give a prescribed approach to the way in which key parameters that need to be assessed are evaluated.

Performance standards use these methods to define a set of conditions indicative to a known system location against which a product can be evaluated on a 'once off' basis to prove that its design and manufacture are capable of satisfying the necessary criteria.

Reliability standards are intended to provide the user and manufacturer with a set of tools for assessing the ability of the product to continue to meet the required criteria over a given or known period of time. Alternatively they may give a means by which the life expectancy of the product can be estimated.

Quality assurance standards describe the mechanisms/methods which can be used to ensure that a product is manufactured to a consistent level of quality, i.e. they allow the manufacturer to demonstrate that a product which has been shown to meet a prescribed performance standard can continue to be manufactured such that the 10th, 100th, 1 000th etc. product will be the same as the first.