

STN	Súbory konektorov a spájacie prvky pre optovláknové komunikačné systémy. Špecifikácie výrobku. Časť 17-2: Typ FPFT (leštený vo výrobe a ukončovaný v teréne) simplex konektor vo výrobe ukončený vláknom kategórie B1.3 a v teréne montovaný na tesne opláštený kábel obsahujúci jednovidové vlákna kategórie B1.3 alebo B6a1 alebo B6a2 (s obmedzeným MFD) podľa IEC 60793-2-50, kategória C.	STN EN 50377-17-2 35 9242
------------	---	---

Connector sets and Interconnect components to be used in optical fibre communication systems - Product specifications - Part 17-2: Type FPFT (factory polished field terminated) simplex connector factory terminated with EN 60793-2-50 category B1.3 fibre and field mounted onto reinforced cable containing IEC 60793-2-50 category B1.3 or B6a1 or B6a 2 singlemode fibre (with restricted MFD), category C

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/15

Obsahuje: EN 50377-17-2:2015

121123

Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, 2015
Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

EUROPEAN STANDARD

EN 50377-17-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2015

ICS 33.180.20

English Version

Connector sets and Interconnect components to be used in optical fibre communication systems - Product specifications - Part 17-2: Type FPFT (factory polished field terminated) simplex connector factory terminated with EN 60793-2-50 category B1.3 fibre and field mounted onto reinforced cable containing IEC 60793-2-50 category B1.3 or B6a1 or B6a 2 singlemode fibre (with restricted MFD), category C

This European Standard was approved by CENELEC on 2014-11-24. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword	3
1 Scope	6
1.1 Product definition	6
1.2 Intermateability	6
1.2.1 Mechanical intermateability	6
1.2.2 Optical intermateability	6
1.3 Operating environment	6
1.4 Reliability	6
1.5 Quality assurance	6
2 Normative references	7
3 Description	8
3.1 General	8
3.2 Plug	8
3.3 Adaptor	8
3.4 Materials	8
3.5 Dimensions	8
3.6 Colour and marking	8
4 Variants	9
4.1 Terminated plug	9
4.2 Identification of variants	9
5 Dimensional requirements – Ferrule end face geometry after termination	10
6 Tests	11
6.1 Sample configuration	11
6.2 Test and measurement methods	11
6.3 Test sequence	11
6.4 Pass/fail criteria	11
7 Test report	12
8 Testing requirements	12
8.1 Dimensional and marking requirements	12
8.2 Optical performance requirements	12
8.3 Mechanical performance requirements	14
8.4 Environmental performance requirements	16
Annex A (normative) Sample size and product sourcing requirements	19
Annex B (informative) Reference connector details	20
B.1 General information	20
B.2 Reference connector details	20
Bibliography	21

Foreword

This document (EN 50377-17-2:2015) has been prepared by CLC/TC 86BXA "Fibre optic interconnect, passive and connectorised components".

The following dates are fixed:

- latest date by which this document has (dop) 2015-11-24
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2017-11-24
standards conflicting with this
document have to be withdrawn

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

EN 50377 is composed of the following parts:

- EN 50377-2 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications*;
- EN 50377-3-1, *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications — Part 3-1: Type SG terminated on IEC 60793-2-10 category A1a, A1b or equivalent multimode fibre for category C*;
- EN 50377-4 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications*;
- EN 50377-5-1, *Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications — Part 5-1: Type EC terminated on IEC 60793-2 category B1.1 singlemode fibre*;
- EN 50377-6 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications*;
- EN 50377-7 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications*;
- EN 50377-8 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications*;
- EN 50377-9 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications*;
- EN 50377-10 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications*;
- EN 50377-11-1, *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications — Part 11-1: Type MF terminated on IEC 60793-2-50 category B1.1 and B1.3 singlemode fibre for category C*;
- EN 50377-13 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications*;

- EN 50377-14-1, *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications — Part 14-1: Cords with IEC 60793-2-50 singlemode category B1.1 and B1.3 fibre for category C;*
- EN 50377-15-1, *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications — Part 15-1: Type MPO with 12-fibre PPS ferrules terminated on IEC 60793-2 category A1a multimode fibre for 50/125 micron multimode fibre;*
- EN 50377-16-1, *Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications — Part 16-1: Type LF3 APC simplex terminated on IEC 60793-2-50 category B1.1 and B1.3 singlemode fibre with titanium composite ferrule for category C;*
- EN 50377-17-1, *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications — Part 17-1: Type FPFT (factory polished field terminated) simplex connector factory terminated with EN 60793-2-50 category B1.3 fibre and field mounted onto IEC 60793-2-50 category B1.3 or B6a_1 or B6a_2 singlemode fibre, category C;*
- EN 50377-17-2, *Connector sets and Interconnect components to be used in optical fibre communication systems — Product specifications — Part 17-2: Type FPFT (factory polished field terminated) simplex connector factory terminated with EN 60793-2-50 category B1.3 fibre and field mounted onto reinforced cable containing IEC 60793-2-50 category B1.3 or B6a1 or B6a 2 singlemode fibre (with restricted MFD), category C. [the present document].*

Connector sets and Interconnect components to be used in optical fibre communication systems – Product specifications	
Part 17–2: Type FPFT (factory polished field terminated) simplex connector factory terminated with EN 60793–2-50 category B1.3 fibre and field mounted onto reinforced cable containing IEC 60793–2-50 category B1.3 or B6a1 or B6a 2 singlemode fibre (with restricted MFD), category C	
Configuration: 1) FPFT Plug/adaptor/plug and/or 2) FPFT Plug/adaptor/FPFT plug Fibre category: EN 60793–2-50 Types B1.3, B6a_1 or B6a_2 (with restricted MFD) Cable type: Reinforced cables > 0,9 mm up to 3 mm outer diameter EN 60794–2-50	Performance Application: For use in IEC Category C Attenuation grades: Configuration 1 FPFT/50377 (random mate) $B_f B_f: \leq 0,20 \text{ dB}$ mean $\leq 0,40 \text{ dB}$ for $\geq 97 \%$ of measurements $C_f C_f: \leq 0,35 \text{ dB mean}$ $\leq 0,70 \text{ dB}$ for $\geq 97 \%$ of measurements Configuration 2 FPFT/FPFT $B_f B_f: \leq 0,35 \text{ dB}$ mean $\leq 0,55 \text{ dB}$ for $\geq 97 \%$ of measurements $C_f C_f: \leq 0,40 \text{ dB}$ mean $\leq 0,75 \text{ dB}$ for $\geq 97 \%$ of measurements Return loss grade: 1: $\geq 60 \text{ dB}$ mated and $\geq 55 \text{ dB}$ unmated 2: $\geq 45 \text{ dB}$ 3: $\geq 35 \text{ dB}$
Related documents: EN 60793–2-50 <i>Optical fibres — Part 2–50: Product specifications — Sectional specification for class B single-mode fibres (IEC 60793–2-50)</i> EN 60794–2-50 <i>Optical fibre cables — Part 2: Indoor cables — Family specification for simplex and duplex cables for use in terminated cable assemblies (IEC 60794–2-50)</i> EN 61300 (all parts) <i>Fibre optic interconnecting devices and passive components — Basic test and measurement procedures (IEC 61300, all parts)</i> EN 61753–1 <i>Fibre optic interconnecting devices and passive components performance standards — Part 1: General and guidance for performance standards (IEC 61753–1)</i>	
Outline and maximum dimensions (mm): For $\geq 2,0 - \leq 3,0 \text{ mm}$ cable diameter 93 mm R30 min for B1.3 fibre R20 min for B6a_1/a_2 fibre For $\geq 0,9 - < 2 \text{ mm}$ cable diameter 83 mm R25 min for B1.3 fibres R15min for B6a_1/a_2 fibres	

1 Scope

1.1 Product definition

This European Standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements that a Factory Polished Field Terminated (FPFT) single mode simplex connector set (plug adaptor plug) will meet in order for it to be categorized as an EN standard product.

The FPFT is designed for either fusion or mechanical splice methods. The performance is specified for the mated combination between a FPFT plug and an EN standardized plug from the EN 50377 series (configuration 1) or between two FTFP plugs (configuration 2). The fibre specified inside the FPFT plug in this European Standard is standard single mode fibre with low water peak as specified as B1.3, which is field mated to B1.3 fibre or bend insensitive single mode fibre specified as B6_a1 or B6_a2 in EN 60793-2-50. Mixing standard and bend insensitive fibres in a connection potentially causes a considerable intrinsic attenuation due to mode field diameter mismatch. These connectors are intended to be for an indoor installation. The connectors are terminated onto reinforced cables according to EN 60794-2-50 with outer diameter greater than 0,9 and up to 3 mm.

Since different variants and grades of performance are permitted, product marking details are given in 3.6.

1.2 Intermateability

1.2.1 Mechanical intermateability

In order to meet mechanical performance requirements, the FPFT plug will meet the optical, environmental and mechanical requirements as stated in this European Standard and the mated plug will meet all the requirements of the relevant EN 50377 series for category C. Intermateability between the FPFT plug and its standard EN 50377 counterpart can only be guaranteed when both plugs meet the same EN 50377 product specification mechanical connector interface dimensions and end face geometry requirements.

1.2.2 Optical intermateability

In EN 50377 product specifications, the random mated performance is calculated when the two connector plugs have been terminated with single-mode fibres using a worst case MFD. The specified MFD range in fibre standards (e.g. B1.3 fibres) is 8,0 μm to 10,1 μm at 1 310 nm, which causes 0,22 dB worst case intrinsic attenuation. However, in EN 50377 product specification series, the MFD is limited to 8,9 μm to 9,5 μm at 1 310 nm. In this European Standard, in order to achieve the random mate performance values, the total MFD range of bend insensitive fibres, e.g. B6a fibres, is limited to 8,5 μm to 9,5 μm at 1 310 nm. This causes a worst case intrinsic attenuation of 0,05 dB.

1.3 Operating environment

The tests selected, combined with the severities and durations, are representative of a category C environment as defined in EN 61753-1. The FPFT plugs are terminated to reinforced optical cables with outer diameter greater than 0,9 mm and up to 3 mm.

1.4 Reliability

While the anticipated service life expectancy of the product in this environment is 20 years, compliance with this European Standard does not guarantee the reliability of the product. This should be predicted using a recognized reliability assessment programme.

1.5 Quality assurance

Compliance with this European Standard does not guarantee the manufacturing consistency of the product. This should be maintained using a recognized quality assurance programme.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50377 (all parts), *Connector sets and interconnect components to be used in optical fibre communication systems — Product specifications*

EN 61300-2-1, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-1: Tests — Vibration (sinusoidal) (IEC 61300-2-1)*

EN 61300-2-2, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-2: Tests — Mating durability (IEC 61300-2-2)*

EN 61300-2-4, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-4: Tests — Fibre/cable retention (IEC 61300-2-4)*

EN 61300-2-5, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-5: Tests — Torsion (IEC 61300-2-5)*

EN 61300-2-12, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-12: Tests — Impact (IEC 61300-2-12)*

EN 61300-2-17, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-17: Tests — Cold (IEC 61300-2-17)*

EN 61300-2-18, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-18: Tests — Dry heat — High temperature endurance (IEC 61300-2-18)*

EN 61300-2-19, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-19: Tests — Damp heat (steady state) (IEC 61300-2-19)*

EN 61300-2-22, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 2-22: Tests — Change of temperature (IEC 61300-2-22)*

EN 61300-3-4, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-4: Examinations and measurements — Attenuation (IEC 61300-3-4)*

EN 61300-3-6, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-6: Examinations and measurements — Return loss (IEC 61300-3-6)*

EN 61300-3-15, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-15: Examinations and measurements — Dome eccentricity of a convex polished ferrule endface (IEC 61300-3-15)*

EN 61300-3-16, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-16: Examinations and measurements — Endface radius of spherically polished ferrules (IEC 61300-3-16)*

EN 61300-3-23, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-23: Examination and measurements — Fibre position relative to ferrule endface (IEC 61300-3-23)*

EN 61300-3-28, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-28: Examinations and measurements — Transient loss (IEC 61300-3-28)*

EN 61300-3-34, *Fibre optic interconnecting devices and passive components — Basic test and measurement procedures — Part 3-34: Examinations and measurements — Attenuation of random mated connectors (IEC 61300-3-34)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN