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Standards

Irish Standard
I.S. EN 50377-17-2:2015

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 B6a2 singlemode fibre (with restricted MFD), category C

I.S. EN 50377-17-2:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 50377-17-2:2015

Published:

2015-01-16

This document was published under the authority of the NSAI and comes into effect on:

2015-02-19

ICS number:

NOTE: If blank see CEN/CENELEC cover page

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Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50377-17-2

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

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

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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document have to be withdrawn

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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	
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<p>Configuration: 1) FPFT Plug/adaptor/plug and/or 2) FPFT Plug/adaptor/FPFT plug</p> <p>Fibre category: EN 60793–2-50 Types B1.3, B6a_1 or B6a_2 (with restricted MFD)</p> <p>Cable type: Reinforced cables > 0,9 mm up to 3 mm outer diameter EN 60794–2-50</p>	<p>Performance</p> <p>Application: For use in IEC Category C</p> <p>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</p> <p>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</p> <p>Return loss grade: 1: $\geq 60 \text{ dB}$ mated and $\geq 55 \text{ dB}$ unmated 2: $\geq 45 \text{ dB}$ 3: $\geq 35 \text{ dB}$</p>
<p>Related documents:</p> <p>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></p> <p>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></p> <p>EN 61300 (all parts) <i>Fibre optic interconnecting devices and passive components — Basic test and measurement procedures (IEC 61300, all parts)</i></p> <p>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></p>	
<p>Outline and maximum dimensions (mm):</p> <div> <div> <p>For $\geq 2,0 - \leq 3,0 \text{ mm}$ cable diameter</p> <p>93 mm</p> <p>R30 min for B1.3 fibre R20 min for B6a_1/a_2 fibre</p> </div> <div> <p>For $\geq 0,9 - < 2 \text{ mm}$ cable diameter</p> <p>83 mm</p> <p>R25 min for B1.3 fibres R15min for B6a_1/a_2 fibres</p> </div> </div>	

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.

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