SLOVENSKI STANDARD

SIST EN 60825-2:2005/A1:2008

01-januar-2008

Varnost laserskih izdelkov - 2. del: Varnost komunikacijskih sistemov z optiļ nimi vlakni (OFCS) (IEC 60825-2:2004/A1:2006)

Safety of laser products - Part 2: Safety of optical fibre communication systems (OFCS) (IEC 60825-2:2004/A1:2006)

Sicherheit von Lasereinrichtungen - Teil 2: Sicherheit von Lichtwellenleiter-Kommunikationssystemen (LWLKS) (IEC 60825-2:2004/A1:2006)

Sécurité des appareils a laser - Partie 2: Sécurité des systèmes de télécommunication par fibres optiques (STFO) (IEC 60825-2:2004/A1:2006)

Ta slovenski standard je istoveten z: **EN 60825-2:2004/A1:2007**

ICS:

31.260	Optoelektronika, laserska oprema	Optoelectronics. Laser equipment
33.180.01	Sistemi z optiļ nimi vlakni na sploġno	Fibre optic systems in general

SIST EN 60825-2:2005/A1:2008 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60825-2/A1

February 2007

ICS 31.260; 33.180.01

English version

Safety of laser products - Part 2: Safety of optical fibre communication systems (OFCS)

(IEC 60825-2:2004/A1:2006)

Sécurité des appareils à laser - Partie 2: Sécurité des systèmes de télécommunication par fibres optiques (STFO) (CEI 60825-2:2004/A1:2006)

Sicherheit von Lasereinrichtungen - Teil 2: Sicherheit von Lichtwellenleiter-Kommunikationssystemen (LWLKS) (IEC 60825-2:2004/A1:2006)

This amendment A1 modifies the European Standard EN 60825-2:2004; it was approved by CENELEC on 2007-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Bulgaria, 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

Ref. No. EN 60825-2:2004/A1:2007 E

Foreword

The text of document 76/346/FDIS, future amendment 1 to IEC 60825-2:2004, prepared by IEC TC 76, Optical radiation safety and laser equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60825-2:2004 on 2007-02-01.

The following dates were fixed:

– latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2007-11-01
– latest date by which the national standards conflicting with the amendment have to be withdrawn	(dow)	2010-02-01

Endorsement notice

The text of amendment 1:2006 to the International Standard IEC 60825-2:2004 was approved by CENELEC as an amendment to the European Standard without any modification.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
60825-2

2004

AMENDEMENT 1
AMENDMENT 1
2006-11

Amendement 1

Sécurité des appareils à laser –

Partie 2:
Sécurité des systèmes de télécommunication par fibres optiques (STFO)

Amendment 1

Safety of laser products –

Part 2:
Safety of optical fibre communication systems (OFCS)

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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FOREWORD

This amendment has been prepared by IEC technical committee 76: Optical radiation safety and laser equipment.

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

FDIS	Report on voting
76/346/FDIS	76/353/RVD

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result 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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4.4 Cable connectors

Replace the existing text of Subclauses 4.4.1, 4.4.2 and 4.4.3 as follows.

4.4.1 Unrestricted locations

In unrestricted locations, if the accessible radiation level exceeds:

– hazard level 2 within the wavelength range 400 nm to 700 nm, or

– hazard level 1 in all other cases,

then suitable means shall limit access to the radiation from the connector.

NOTE In an unrestricted location the highest hazard levels permitted are hazard level 2M for the wavelength range 400 nm to 700 nm and hazard level 1M in all other cases (see 4.9.1)

4.4.2 Restricted locations

In restricted locations, if the accessible radiation level exceeds:

– hazard level 2M within the wavelength range 400 nm to 700 nm, or
– hazard level 1M in all other cases,

then suitable means shall limit access to the radiation from the connector.

NOTE In a restricted location the highest hazard level permitted is hazard level 1M, 2M or 3R, whichever is the higher (see 4.9.2).

4.4.3 Controlled locations

In controlled locations, if the accessible radiation level exceeds:

– hazard level 2M within the wavelength range 400 nm to 700 nm, or
– hazard level 1M in all other cases,

then suitable means shall limit access to the radiation from the connector.

NOTE In a controlled location the highest hazard level permitted is hazard level 3B (see 4.9.3).

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4.6 Labelling or marking

Replace the existing text of Subclause 4.6 by the following.

4.6.1 General requirements

Where required by this subclause, each optical connector, splice box or other part emitting radiation when opened shall be marked (e.g. with a label, sleeve, tag, tape etc.), if the hazard level at the location is in excess of hazard level 1. The information shall consist of the information identified in Tables 1, 2 or 3 as applicable.

Where the accessible radiation at points of disconnection is hazard level 1 or hazard level 1M it is permitted for the above information to be provided in information for the user instead of as a marking on the product.

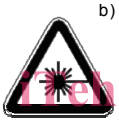
Markings shall be coloured black on a yellow background. Labels reproduced in the documentation provided by the manufacturer or by the operating organisation are permitted to use black on a white background.

It is acceptable to reduce the marking in size, providing that the result is legible. For subassemblies containing lasers or optical amplifiers, it is the responsibility of the manufacturer of the subassembly to provide such labelling; all other labelling is the responsibility of the operating organization.

Except as permitted below, each optical connector, splice box or other part that is intended to permit access to optical radiation when opened shall be marked (e.g. with a label, sleeve, tag, tape etc.) in accordance with Tables 1, 2 or 3, as applicable.

In addition to the marking required in this Part 2, certain subassemblies may also need to be marked because of their stand-alone application under Part 1, and in such situations it is left to the manufacturer of the OFCS whether they supplement the marking required by Part 1 or replace it with the marking as required by Part 2.

Table 1 – Marking in unrestricted locations

Accessible hazard level	Required marking - Unrestricted location
1	No marking required
1M	No marking required [a)]
2	 b) e) **CAUTION** HAZARD LEVEL 2 LASER [c)] RADIATION [d)] DO NOT STARE INTO BEAM
2M	 b) e) **CAUTION** HAZARD LEVEL 2M LASER [c)] RADIATION [d)] DO NOT STARE INTO THE BEAM OR VIEW DIRECTLY WITH NON-ATTENUATING OPTICAL INSTRUMENTS
3R	Not permitted
3B	Not permitted
NOTE See 4.6.5 regarding invisible laser beam hazards.	

Conditions applicable to the above table:

a Subclause 4.4.1 requires access to radiation from a connector to be limited to hazard level 1 by a suitable means and the mechanical design of the fibre cables must be consistent with the relevant standard within the IEC 60794 series (see 4.3). Therefore, hazard level 1M is exempt from marking requirements.

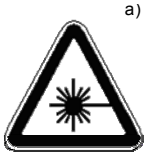
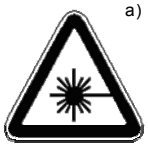
b Hazard symbol warning label according to IEC 60825-1, Figure 14.

c Where the source of the radiation is a light emitting diode, the word “Laser” above shall be replaced by “LED”.

d Replacing the word “Radiation” with “Light” for radiation in the range 400 nm to 700 nm is optional.

e Explanatory label (outline) according to IEC 60825-1, Figure 15. It is permitted for this outline to also encompass the hazard symbol according to IEC 60825-1, Figure 14.

Table 2 – Marking in Restricted Locations

Accessible hazard level	Required Marking - Restricted Location
1	No marking required
1M	Marking required only for those cases where the requirements for cable connectors in unrestricted locations are not met (see 4.4.1), but also see note 2 below:  a) d) **CAUTION** HAZARD LEVEL 1M LASER b) RADIATION c) DO NOT VIEW DIRECTLY WITH NON-ATTENUATING OPTICAL INSTRUMENTS
2	 a) d) **CAUTION** HAZARD LEVEL 2 LASER b) RADIATION c) DO NOT STARE INTO BEAM
2M	 a) d) **CAUTION** HAZARD LEVEL 2M LASER b) RADIATION c) DO NOT STARE INTO THE BEAM OR VIEW DIRECTLY WITH NON-ATTENUATING OPTICAL INSTRUMENTS
3R	 a) d) **CAUTION** HAZARD LEVEL 3R LASER b) RADIATION c) AVOID EXPOSURE TO THE BEAM
3B	Not permitted.
NOTE 1 Unlike the labelling requirements of 5.8 of IEC 60825-1, marking in restricted locations is mandatory for locations with hazard level 1M, except as identified above.	
NOTE 2 Where the accessible radiation at points of disconnection is hazard level 1 or hazard level 1M, it is permitted for this to be noted in information for the user instead of as a marking on (e.g.) the product, fibre or connector.	
NOTE 3 See 4.6.5 regarding invisible laser beam hazards.	
Conditions applicable to the above table: a Warning label according to IEC 60825-1, Figure 14. b Where the source of the radiation is a light emitting diode, the word “Laser” above shall be replaced by “LED”. c If the radiation is in the range 400 nm to 700 nm it is optional to replace the word “Radiation” with “Light”. d Explanatory label (outline) according to Figure 15 of IEC 60825-1. It is permitted for this outline to also encompass the hazard symbol according to Figure 14 of IEC 60825-1.	