SLOVENSKI STANDARD
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Svetloba in razsvetljava - Merjenje in podajanje fotometričnih podatkov svetlobnih virov in svetilk - 1. del: Merjenje in format podatkov

Light and lighting - Measurement and presentation of photometric data of lamps and luminaires - Part 1: Measurement and file format

Licht und Beleuchtung - Messung und Darstellung photometrischer Daten von Lampen und Leuchten - Teil 1: Messung und Datenformat

Lumière et éclairage - Mesure et présentation des données photométriques des lampes et des luminaires - Partie 1: Mesurage et format de données

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Light and lighting - Measurement and presentation of photometric data of lamps and luminaires - Part 1: Measurement and file format

Lumière et éclairage - Mesure et présentation des données photométriques des lampes et des luminaires - Partie 1: Mesurage et format de données

Licht und Beleuchtung - Messung und Darstellung photometrischer Daten von Lampen und Leuchten - Teil 1: Messung und Datenformat

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 169.

This draft amendment A1, if approved, will modify the European Standard EN 13032-1:2004. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Foreword

This document (EN 13032-1:2004/FprA1:2011) has been prepared by Technical Committee CEN/TC 169 “Light and lighting”, the secretariat of which is held by DIN.

This document is currently submitted to the Unique Acceptance Procedure.

1 Modification to the Foreword

Delete the penultimate paragraph.

2 Modification to the Introduction

Add the following paragraph at the end:

"Due to the specific handling requirements for T16 and compact fluorescent lamps, these lamps are covered separately (normative Annex F).".

3 Modification to Clause 2, Normative references

Add the following references:

"EN 60081, *Doublecapped fluorescent lamps — Performance specifications (IEC 60081:1997)*

EN 60901, *Single-capped fluorescent lamps — Performance specifications (IEC 60901:1996)*".

Delete the full stops at the end of reference titles.

4 Modification to Clause 3, Terms and definitions

Add the following new terms and definitions: "

3.7
measurement lamp
lamp used for the photometric characterisation of a luminaire

3.8
cold spot (of a fluorescent lamp)
coldest point on the discharge tube that determine the Hg-pressure in the discharge tube".

5 Modification to Clause 5, Laboratory requirements for tests

Add at the end of 5.2.4:

"The provisions of Annex F apply for luminaires equipped with single capped tubular compact fluorescent lamps (TC-F, TC-L and other TC lamps with external ballast), 16 mm diameter linear double-capped fluorescent lamps (T16) and single-ended ring fluorescent lamps (T16-R).".

In Table 2 "Overview of selected requirements and operating conditions for light sources", replace column 2 in line 5 "

Measurement of intensity must be taken at least once per min for 15 minutes. No pair of reading shall differ by more than 1 % of the minimum. If this is not feasable the real fluctuation shall be stated. Compact fluorescent lamps, T 5 - lamps shall be restabilized at least 16 hours after destabilization (e. g. by shock or change in operating position). Lamps shall be cooled down in measurement position; at least the cooling down time of the lamp type under consideration shall be applied.

" *with the following:* **"**

Measurement of intensity shall be taken at least once per min for 15 min. No pair of reading shall differ by more than 1 % of the minimum. If this is not feasible the real fluctuation shall be stated. Lamps shall be cooled down in measurement position; at least the cooling down time of the lamp type under consideration shall be applied. The provisions of Annex F apply for luminaires equipped with single capped tubular compact fluorescent lamps (TC-F, TC-L and other TC lamps with external ballast), 16 mm diameter linear double-capped fluorescent lamps (T16) and single-ended ring fluorescent lamps (T16-R).

".

6 Addition of Annex F

Add the following new Annex F: "

Annex F
(normative)

Measurement procedure for the photometry of luminaires equipped with T16 lamps or fluorescent compact lamps

F.1 General

Single capped compact fluorescent lamps and double capped tubular fluorescent lamps with a diameter of 16 mm (T 16) are designed to allow system miniaturisation and energy savings. The light performances of these lamps are strongly influenced by the ambient temperature due to their construction. The lamp flux is also dependent on the ballast-lamp combination and on the history of the lamp.

The provisions apply for the photometry of fluorescent luminaires equipped with single capped tubular compact fluorescent lamps (TC-F, TC-L and other TC lamps with external ballast), 16 mm diameter linear double-capped fluorescent lamps (T16) and single-ended ring fluorescent lamps (T16-R), at the exception of: T16 4 W, 6 W, 8 W and 13 W lamps known as miniature fluorescent lamps.

NOTE 1 The denominations are according to the International Lamp Coding System (ILCOS IEC/TS 61231). T16 lamps are also denominated in literature T5 (16 mm = 5/8 inches).

NOTE 2 The measurement procedures for T 16 amalgam lamps are under study.

F.2 Preparation and handling of measurement lamps

F.2.1 Ageing

Before a lamp is measured for the first time, it shall be aged for a period of 100 h of normal operation. Ageing should be performed once per measurement lamp. The lamp shall be run at rated supply voltage. The local ambient temperature shall be between 15 °C and 50 °C.

Table F.1 — Lamp positioning

Lamp type	Lamp position for ageing and burning-in
T 16 linear fluorescent lamp	Vertical, cold spot (stamp) down
T 16-R ring fluorescent lamp	Vertical, cap down
TC tubular compact fluorescent lamp	Vertical, cap up

NOTE 1 Lamp position specified for ageing may differ from lamp position during stabilisation, as ageing position is choosen to accelerate the process of migration of excess of mercury near to the cold spot location.

NOTE 2 For linear T16 lamps the cold spot is located on the stamp side at the transition of the glass tube to the metal cap. For T16-R lamps the cold spot is also located in the cap on the stamp side. For TC single-capped fluorescent lamps for details, check technical specification of the manufacturers. The temperature of this point strongly influences the luminous flux of the lamp.

F.2.2 Burn-in (pre-conditionning)

Before every new series of measurement, measurement lamps shall be burnt-in as specified in Table 1 for at least 24 h without switching. The burn-in of a lamp should be performed using the same, or an identical in

construction, ballast as used for the measurement and the wiring of lamp-ballast combination shall be identical. The local ambient temperature shall be between 15 °C and 50 °C.

F.2.3 Hot transfer

For ageing and burn-in the lamp may be operated in a location, distant to the test location. Before taking a lamp out of its holder the mains voltage shall be switched off and the lamp shall cool down for 1 min in the burning position. When moving to the test location, the lamp shall be kept in a vertical position with the cold spot down and not subjected to vibration or shock and no warm glass parts are to be touched (i.e. creating a parasitic cold spot). Thermally insulating gloves or similar technique shall be used. The interruption of the supply should be as short as possible (≤ 30 min).

F.2.4 Stabilisation

Stabilisation occurs in the test location. Bare lamps shall be tested in an operating position according Table 2 except if otherwise specified by EN 60081 or EN 60901.

Table F.2 — Lamp positioning for stabilisation

Lamp type	Lamp position for stabilisation
T 16 linear fluorescent lamp	Horizontal
T 16-R ring fluorescent lamp	Horizontal
TC-F and TC-L tubular compact fluorescent lamp	Horizontal
All other TC tubular compact fluorescent lamp (with external ballast)	Vertical, cap up

In a luminaire the stabilisation and the measurements have to be performed in the mounting position of the luminaire.

The stabilisation has to be performed before each measurement at an ambient temperature of 25 °C ± 1 °C. Lamp stabilisation shall be at least for 30 min in the measurement setup using the same electronic ballast as used for the measurement of the luminaire. The supply voltage shall be stable within ± 0,2 %. The end of stabilisation is reached if during the last 15 min before starting the measurement the luminous flux or illuminance varies not more than ± 0,5 %.

F.2.5 Multiple use of lamps

It is possible to use the same lamp-ballast combinations for several consecutive luminaire measurements without measuring the luminous flux of the lamp. The lamp should not be switch-off longer than 30 min between consecutive luminaires measurements in order to maintain the thermal stabilisation of the lamp. Otherwise it is recommended to hot transfer the lamp back to the burn-in rack during the installation of the next luminaire.

If the lamp has cooled down, it has to be burned-in again before re-measurement.

F.2.6 Replacement of measurement lamps

The lamp has to be replaced if it has any mechanical damage or if its luminous flux varies for more than ± 3 % to the last measurement of luminous flux with the same ballast.