SLOVENSKI STANDARD

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Lamps for road vehicles - Dimensional, electrical and luminous requirements - Amendment A2 (IEC 60809:1995/A2:2002)

ICS 29.140.20

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EUROPEAN STANDARD **EN 60809/A2**

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English version

Lamps for road vehicles - Dimensional, electrical and luminous requirements
(IEC 60809:1995/A2:2002)

Lampes pour véhicules routiers - Prescriptions dimensionnelles, électriques et lumineuses
(CEI 60809:1995/A2:2002)

Lampen für Straßenfahrzeuge - Maße, elektrische und lichttechnische Anforderungen
(IEC 60809:1995/A2:2002)

This amendment A2 modifies the European Standard EN 60809:1996; it was approved by CENELEC on 2002-06-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

The text of document 34A/979/FDIS, future amendment 2 to IEC 60809:1995, prepared by SC 34A, Lamps, of IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60809:1996 on 2002-06-01.

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) 2003-03-01

– latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2005-06-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A, B, C, D, E, F, H and ZA are normative and annexes G and J are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of amendment 2:2002 to the International Standard IEC 60809:1995 was approved by CENELEC as an amendment to the European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

Replace the existing list of references by:

Publication	Year	Title	EN/HD	Year
IEC 60050-845	- [1)]	International Electrotechnical Vocabulary (IEV) Chapter 845: Lighting	-	-
IEC 60051	- [1)]	Direct acting indicating analogue electrical measuring instruments and their accessories	EN 60051	Series
IEC 60061-1 (mod)	- [1)]	Lamp caps and holders together with gauges for the control of interchangeability and safety Part 1: Lamp caps	EN 60061-1 + amendments	1993 [2)]
IEC 60810	- [1)]	Lamps for road vehicles - Performance requirements	EN 60810	1994 [2)]
IEC 60983	- [1)]	Miniature lamps	EN 60983	1996 [2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
60809

Deuxième édition
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Modifiée selon les amendements:
Amended in accordance with amendments:
1(1996) et/and 2(2002)

Lampes pour véhicules routiers – Prescriptions dimensionnelles, électriques et lumineuses

Lamps for road vehicles – Dimensional, electrical and luminous requirements

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Международная Электротехническая Комиссия

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LAMPS FOR ROAD VEHICLES –

DIMENSIONAL, ELECTRICAL AND LUMINOUS REQUIREMENTS

1 General

1.1 Scope

This International Standard is applicable to replaceable lamps (filament lamps and discharge lamps) to be used in headlamps, fog-lamps and signalling lamps for road vehicles.

It is especially applicable to those lamps which are the subject of legislation. In particular, it includes the lamps contained in Regulations[1)] No.37and No.99 of the Geneva Agreement of 20 March 1958 of the United Nations Economic Commission for Europe (ECE). However, the standard may be used for other lamps falling under the scope of this standard.

The standard specifies the technical requirements with methods of tests and basic interchangeability (dimensional, electrical and luminous) for lamps of normal production and for standard (étalon) lamps.

For most of the requirements given in this standard reference is made to the "relevant data sheet". For all lamps listed in Clause 5 , data sheets are contained in this standard. For other lamps the relevant data are supplied by the lamp manufacturer or responsible vendor. It could be based on national legislation.

Other requirements such as lamp life, lumen maintenance, torsion strength and resistance to vibration and shock are specified in IEC 60810. The latter standard also gives information for guidance of lighting equipment design, such as temperature limits and maximum lamp outlines.

Road vehicle lamps for supplementary purposes which are not the subject of legislation are specified in IEC 60983.

In countries which legislate for approval, for example under the terms of the aforementioned ECE Regulations, it is suggested that reference is made to this standard for assessment of compliance. IEC 60810 and IEC 60983 are not intended for that purpose.

NOTE In the various vocabularies and standards, different terms are used for "incandescent lamp" (IEV 845-07-04) and "discharge lamp" (IEV 845-07-17). In this standard "filament lamp" and "discharge lamp" are used. However, where only "lamp" is written both types are meant, unless the context clearly shows that it applies to one type only.

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1) United Nations Economic Commission for Europe (ECE), Regulation 37:1992, *Uniform provisions concerning the approval of filament lamps for use in approved lamp units of power-driven vehicles and of their trailers*

United Nations Economic Commission for Europe (ECE), Regulation 99:1996, *Uniform provisions concerning the approval of gas-discharge light sources for use in approved gas-discharge lamp units of power-driven vehicles*

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to or revisions of, these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(845), *International Electrotechnical Vocabulary (IEV) – Chapter 845: Lighting*

IEC 60051, *Direct acting indicating analogue electrical measuring instruments and their accessories*

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60810, *Lamps for road vehicles - Performance requirements*

IEC 60983, *Miniature lamps*

1.3 Definitions

1.3.1
category
this term is used to describe different basic designs of standardized lamps.

NOTE Each specific designation, for example P21/5W, H4, D2R forms a category. Most of these designations are taken from the ECE Regulations.

1.3.2
type
lamps of different types are those within the same category which differ in such essential respects as:

a) trade name or mark;

NOTE Lamps bearing the same trade name or mark but produced by different manufacturers are considered as being of different types. Lamps produced by the same manufacturer differing only by the trade name or mark may be considered to be of the same type.

b) bulb design, insofar as it affects the optical results;

c) for filament lamps, nominal voltage.

1.3.3
type test
test or series of tests, made on a type test sample, for the purpose of checking compliance of the design of a given product with the requirements of the relevant specification.

1.3.4
type test sample
sample consisting of one or more similar units, submitted by the manufacturer or responsible vendor for the purpose of a type test.

1.3.5
conformity of production
compliance of the series production of a given type with the requirements of the relevant specification.

NOTE 1 Production lamps are of the same design as the approved type test sample.

NOTE 2 Local regulations may provide for checking conformity of production by a government agency.

1.3.6
nominal voltage
voltage used to designate a lamp, usually being the battery voltage (6,12 or 24 V) of the road vehicle supply network.

1.3.7
nominal wattage
wattage used to designate a lamp.

1.3.8
test voltage
voltage at the cap terminals for filament lamps and at the input terminals of the ballast for discharge lamps for which some characteristics are specified and at which they shall be tested.

1.3.9
rated value
value of a characteristic specified for operation of a lamp at test voltage and/or other specified conditions.

1.3.10
tolerance
allowable variation from a rated value generally expressed as percentage of the rated value.

1.3.11
limit values
lowest and/or highest values for characteristics to which the lamp has to comply when operated under specified conditions.

1.3.12
test luminous flux
specified luminous flux of a standard (étalon) lamp at which the photometric characteristics of lighting and light-signalling devices shall be measured and which has to be adjusted for testing a lamp in the standard headlamp according to 2.8.

1.3.13
reference plane
plane defined with reference to the cap or base and with respect to which positions of certain parts of the lamp are measured.

1.3.14
reference axis
axis defined with reference to the cap or base and with respect to which the positions of certain parts of the lamp are measured.

1.3.15
ageing period
period during which unused lamps are operated at their test voltage in order to stabilize their performance.

1.3.16
standard lamp (étalon lamp)
lamp with colourless bulb, if no other colour is allowed according to the relevant lamp data sheet, and with reduced dimensional tolerances, used for the photometric testing of lighting and light-signalling devices.

NOTE Standard lamps are specified for only one nominal voltage for each category.

1.3.17
production lamp
lamp which shall comply with the requirements of this standard as indicated in the column "production lamps" on the relevant lamp data sheet.

1.3.18
heavy duty lamp
lamp declared as such by the manufacturer or responsible vendor which shall comply with the heavy duty test conditions specified in table B2 of IEC 60810 in addition to the requirements specified in this standard.

1.4 Numbering system for lamp data sheets

The first number represents the number of this standard (60809) followed by the letters "IEC".

The second number represents the lamp data sheet number.

The third number on the sheet indicates the edition of the sheet.

2 Requirements and test conditions for filament lamps

2.1 General requirements

Filament lamps shall be so designed as to be and to remain in good working order when in normal use. They shall, moreover, exhibit no fault in design or manufacture.

2.2 Lamp marking

The following information shall be legibly and durably marked on all filament lamps:

– the trade name or mark of the manufacturer or responsible vendor;
– the nominal voltage;
– the international designation of the relevant category;
– the nominal wattage (in the sequence: high wattage filament/low wattage filament for dual filament lamps); this need not be indicated separately if it is part of the international designation of the relevant filament lamp category.

Additionally, halogen filament lamps meeting the requirements of 2.9 shall be marked with a “U”.

NOTE Halogen filament lamps are filament lamps whose category designation starts with the letter “H”.

Inscriptions other than the above may be affixed.

NOTE An example of such an inscription is the approval mark conferred by an administrative authority.

Compliance shall be checked by the following:

a) presence and legibility - by visual inspection;

b) durability - by applying the following test on unused lamps:

The area of the marking on the lamp shall be rubbed by hand with a smooth cloth, dampened with water, for a period of 15 s.

After this test the marking shall still be legible.

If the marking is on the bulb, it shall not adversely affect the luminous characteristics.

2.3 Bulbs

Filament lamp bulbs shall exhibit no scores or spots which might impair their optical performance.

2.4 Colour of the bulb

2.4.1 General

The bulb of the filament lamp shall be colourless, unless otherwise prescribed on the relevant filament lamp data sheet. For some categories a coloured bulb is allowed.

2.4.2 Coloured bulb

In the case of a coloured bulb, after the ageing period corresponding to C.1, the surface of the bulb shall be lightly wiped with a cotton cloth soaked in a mixture of 70 % by volume of n-heptane and 30 % by volume of toluol. After about 5 min, the surface shall be inspected visually. It shall not show any apparent changes.

The colour of the bulb shall be in accordance with the requirements of annex B.

2.5 Lamp dimensions

The filament lamp dimensions shall comply with the limiting values given in the lamp drawing or on the relevant filament lamp data sheet.

The definition of and the measuring condition for the filament shape, length and position, shall be in accordance with the appropriate requirements of annexes A, D, E and F respectively.

2.6 Caps and bases

Filament lamps shall have standard caps or bases as specified on the relevant filament lamp data sheet and shall comply with the relevant cap data sheet of IEC 60061-1.

2.7 Initial electrical and luminous requirements

Filament lamp wattage and luminous flux shall comply with the limiting values given on the relevant lamp data sheet.

The luminous flux specified on the relevant filament lamp data sheet applies for filament lamps emitting white light, unless a special colour is stated there.

In the case where selective-yellow colour is allowed the luminous flux of the filament lamp with selective-yellow (outer) bulb shall be at least 85 % of the specified luminous flux of the relevant filament lamps with colourless bulb.

Compliance shall be checked by the tests specified in annex C.

2.8 Check on optical quality

This requirement applies only to double filament lamps with internal shield for headlamps emitting an asymmetrical dipped beam when the relevant regulation requires such a test.

The check on optical quality shall be carried out at a voltage such that the test luminous flux is obtained.

2.8.1 12 V lamps emitting white light

The sample which most nearly conforms to the requirements laid down for the standard filament lamp shall be tested in an appropriate standard headlamp and it shall be verified that the assembly comprising the aforesaid headlamp and the filament lamp being tested meets the light-distribution requirements laid down for the dipped beam in the relevant regulation, directive or standard.

2.8.2 6 V and 24 V lamps emitting white light

The sample which most nearly conforms to the rated dimension values shall be tested in an appropriate standard headlamp and it shall be verified that the assembly comprising the aforesaid headlamp and the filament lamp being tested meets the light-distribution requirements laid down for the dipped beam in the relevant regulation, directive or standard. Deviations not exceeding 10 % of the minimum values will be acceptable.

2.8.3 Lamps having a selective-yellow bulb or outer bulb

Filament lamps having a selective-yellow bulb or outer bulb shall be tested in the same manner as described in 2.8.1 and 2.8.2 in an appropriate standard headlamp to ensure that the illuminance complies with at least 85 % for 12 V filament lamps, and at least 77 % for 6 V and 24 V filament lamps with the minimum values of the light-distribution requirements laid down for the dipped beam in the relevant regulation, directive or standard. The maximum illuminance limits remain unchanged.

In the case of a filament lamp having a selective-yellow bulb, the test shall be left out if the approval is also given to the same type of filament lamp emitting white light.

2.9 UV radiation

The UV radiation of a halogen filament lamp shall be such that:

$$k_1 = \frac{\int_{315nm}^{400nm} \Phi_\lambda d\lambda}{683 \int_{380nm}^{780nm} \Phi_\lambda V(\lambda) d\lambda} \leq 2x10^{-4} W/lm$$

$$k_2 = \frac{\int_{250nm}^{315nm} \Phi_\lambda d\lambda}{683 \int_{380nm}^{780nm} \Phi_\lambda V(\lambda) d\lambda} \leq 2x10^{-6} W/lm$$

Where:

Φ_λ [W/nm] is the spectral distribution of the radiant flux;

$V(\lambda)$ [1] is the spectral luminous efficiency;

λ [nm] is the wavelength.

These values shall be calculated using intervals of five nanometres.

2.10 Standard (étalon) filament lamps

Standard filament lamps shall fulfil the additional requirements as specified on the relevant filament lamp data sheets.

3 Requirements and test conditions for discharge lamps

3.1 General requirements

Discharge lamps shall be so designed as to be and to remain in good working order when in normal use. They shall, moreover, exhibit no fault in design or manufacture.

3.2 Lamp marking

The following information shall be legibly and durably marked on the cap of the discharge lamps:

– the trade name or mark of manufacturer or responsible vendor;
– the nominal wattage;
– the international designation of the relevant category.

Inscriptions other than the above may be affixed.

NOTE 1 An example of such inscription is the approval mark conferred by an administrative authority.

NOTE 2 The ballast used for starting and operating the discharge lamps should be marked with type and trade mark identification and with the nominal voltage and wattage, as indicated on the relevant data sheet.