

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1 AMENDEMENT 1

Discharge lamps (excluding fluorescent lamps) – Safety specifications

Lampes à décharge (à l'exclusion des lampes à fluorescence) – Prescriptions de sécurité

[IEC 62035:2014/AMD1:2016](https://standards.iteh.ai/catalog/standards/sist/8179f91-fa54-4484-a06f-3ce11a3c27a4/iec-62035-2014-amd1-2016)

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FOREWORD

This amendment has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

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

CDV	Report on voting
34A/1873/CDV	34A/1909/RVC

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 stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
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2 Normatives references

Add the following new reference:

IEC 60598-1:2014, *Luminaires – Part 1: General requirements and tests*

4.3.1.2 Creepage distance

Replace the existing text with the following new text including new Table 7:

The minimum creepage distance between contact pin(s) or contacts and a touchable metal shell of the cap shall be in accordance with the requirements of IEC 60061-4 sheet number 7007-6.

Metal parts of the lamp which are not connected to current carrying parts (for example a metal cap shell) and which may be accessible in normal use or during lamp replacement, shall be insulated from live parts by double or reinforced insulation. In these cases the minimum creepage distance between live parts and a touchable metal part of the lamp or cap shall be in accordance with the reinforced insulation requirements of IEC 60598-1:2014, Section 11.

Lamps with caps listed in Table 7 shall comply with these requirements.

Table 7 – Voltage to be considered for creepage and clearance

Cap code	Relevant maximum voltage according to IEC 60598-1:2014, Table 11.1	Relevant maximum voltage according to IEC 60598-1:2014, Table 11.2
GX8.5	305 V	5 kV pulse
GX10	305 V	5 kV pulse
GU8.5	305 V	5 kV pulse
PGZ12	305 V	5 kV pulse
PGZX18	305 V	5,9 kV pulse ^a
^a 5,9 kV is the equivalent peak voltage based on HF ignition currently used for this system.		

For caps PGZ12 and GX8.5, minimum creepage distances and clearances of 6,5 mm apply.

NOTE See IEC 60061-4, sheet 7007-6 for information.

Compliance is checked by measurement.

4.4.2 Insulation resistance

Replace the existing text with the following new text:

Lamps where metal parts which are not connected to current carrying parts (for example a metal cap shell) can be touched after insertion into the holder shall have an insulation resistance between the metal parts and the pin(s) or contacts of not less than 4 MΩ for lamps with a cap listed in Table 7 and 2 MΩ for all others

Compliance is checked by measurement with suitable test equipment using a d.c. voltage of 500 V.

4.4.3 Electric strength

Replace the existing text with the following new text:

The insulation between the same parts as those referred to in 4.4.2 shall have sufficient dielectric strength.

For lamps with a cap listed in Table 7 compliance is checked with a 3 000 V a.c. voltage of substantially sine-wave form, with a frequency of 50 Hz or 60 Hz and applied for 1 min. For all other caps 1 500 V a.c. is used. Initially, not more than half the prescribed voltage shall be applied. The voltage shall then be raised rapidly to the full value.

No flash-over or breakdown shall occur during the test. Glow discharges without a drop in voltage are neglected.

7.1 General

Delete the existing second sentence of the first paragraph starting with "This method ...".

Replace the existing second paragraph with the following new text:

Details of a batch test procedure which can be used to make a limited assessment of batches are given in 7.3. Requirements for batch testing are included in order to enable the assessment of batches presumed to contain unsafe lamps. As some safety requirements cannot be checked by batch testing, and as there may be no previous knowledge of the

manufacturer's quality, where a batch is found to be acceptable, it may only be concluded that there is no reason to reject the batch on safety grounds.

7.2 Assessment of whole production by means of manufacturer's records

Delete the existing Subclauses 7.2.1, 7.2.2 and 7.2.3 and replace with the following new text:

For additional provisions for certification, see Annex K.

7.3.1 Sampling for batch testing

Replace the existing first sentence of the first paragraph with the following new text:

The lamps for testing shall be selected in a way as to ensure proper representation.

F.3 Cap/holder – key configuration

Replace the existing title of Clause F.3 with the following new title:

F.3 Cap/holder – Key configuration and information for class II luminaires

Add, at the end of the existing Clause F.3, the following new text:

Some lamps with cap codes listed in Table 7 have metal parts which are not connected to current carrying parts (for example a metal cap shell) which can be touched after insertion into the lampholder. These lamps are provided with double or reinforced insulation according to the voltages listed in Table 7. <https://standards.iteh.ai/catalog/standards/sist/817991-fa54-4484-a06f-1a3c27-4dec62035-2014-amd1-2016>

In case the lamps are supplied or used in class II luminaire where the above mentioned voltages are exceeded (if it is allowed by the lamp data sheet or by the lamp manufacturer), the luminaire manufacturer shall provide extra insulation between the metal part of the cap and accessible conductive part of the luminaire.

Add, after the existing Clause F.6, the following new Clause F.7:

F.7 Water contact

All lamps within the scope of this standard should be protected from direct water contact, for example by drips, splashing by the luminaire, if the luminaire is rated at IPX1 or higher.

NOTE The X in the IP number indicates a missing numeral but both of the appropriate numerals are marked on the luminaire.

Add, after Annex J, the following new Annex K:

Annex K (informative)

Additional requirements for certification

K.1 General

The manufacturer should show evidence that his products comply with the particular requirements of Clause K.2. To this end, the manufacturer should make available all the results of his product testing pertinent to the requirements of this standard.

The test results may be drawn from working records and, as such, may not be immediately available in collated form.

The assessment should be based in general on individual factories, each meeting the acceptance criteria of Clause K.2. However, a number of factories may be grouped together, provided they are under the same quality management. For certification purposes, one certificate may be issued to cover a nominated group of factories, but the certification authority may have the right to visit each plant to examine the local relevant records and quality control procedures.

For certification purposes, the manufacturer may declare a list of marks of origin and corresponding lamp families, groups, etc. The certificate may be taken to include all lamps so listed made by the manufacturer. Notification of additions or deletions may be made at any time.

In presenting the test results, the manufacturer may combine the results of different lamp families, groups and/or types according to column 4 of Table K.1.

The whole production assessment requires that the quality control procedures of a manufacturer should satisfy recognized quality system requirements for final inspection. Within the framework of a quality system based also on in-process inspection and testing, the manufacturer may show compliance with some of the requirements of this standard by means of in-process inspection instead of finished product testing.

The manufacturer should provide sufficient test records with respect to each clause and subclause as indicated in column 5 of Table K.1.

The number of nonconformities in the manufacturer's records should not exceed the limits shown in Tables K.2 or K.3 relevant to the acceptable quality level (AQL) values shown in column 6 of Table K.1.

The period of review for assessment purposes need not be limited to a predetermined year, but may consist of 12 consecutive calendar months immediately preceding the date of review.

A manufacturer who has met, but no longer meets, the specified criteria should not be disqualified from claiming compliance with this standard provided he can show that:

- a) action has been taken to remedy the situation as soon as the trend was reasonably confirmed from his test records;
- b) the specified acceptance level was re-established within a period of:
 - 1) six months for 4.3.2.2 b) and 4.3.2.3 b);
 - 2) one month for the other clauses and subclauses.

When compliance is assessed after corrective action has been taken in accordance with items a) and b), the test records of these lamp families, groups and/or types which do not comply

should be excluded from the 12-month summation for their period of non-compliance. The test results relating to the period of corrective action should be retained in the records.

A manufacturer who has failed to meet the requirements of a clause or subclause where grouping of the test results is permitted, should not be disqualified for the whole of the lamp families, groups and/or types so grouped if he can show by additional testing that the problem is present only in certain families, groups and/or types so grouped. In this case, either these families, groups and/or types are dealt with in accordance with a) and b) as above or they are deleted from the list of families, groups and/or types which the manufacturer may claim are in conformity with the standard.

In the case of a family, group and/or type which has been deleted from the list, it may be reinstated if satisfactory results are obtained from tests on a number of lamps equivalent to the minimum annual sample specified in Table K.1, required by the clause or subclause where non-compliance occurred. This sample may be collected over a short period of time.

In the case of new products, there may be features which are common to existing lamp families, groups and/or types, and these can be taken as being in compliance if the new product is taken into the sampling scheme as soon as manufacture is started. Any feature not so covered should be tested before production starts.

K.2 Assessment of manufacturer's records for particular tests

Table K.1 specifies the type of test and other information which applies to the method of assessing compliance to the requirements of various clauses and subclauses.

A design test needs be repeated only when a substantial change is made in the physical or mechanical construction, materials, or manufacturing process used to manufacture the relevant product. Tests are required for only those properties affected by the change.

K.3 Sampling procedures for the whole production testing

The conditions of Table K.1 apply.

The whole production running tests should be applied at least once per production day. They may also be based on in-process inspection and testing.

The frequency of application of the various tests may be different, providing the conditions of Table K.1 are met.

Whole production tests should be made on samples randomly selected at a rate not less than that indicated in column 5 of Table K.1. Lamps selected for one test need not be used for other tests.

For whole production testing of the requirements for accidentally live parts (see 4.4.1), the manufacturer should demonstrate that there is a continuous 100 % inspection.

**Table K.1 – Grouping of test records –
Sampling and acceptable quality levels (AQL)**

1 Subclause	2 Test	3 Type of test	4 Permitted accumulation of test records	5 Minimum annual sample per accumulation		6 AQL ^a %
				For lamps made most of the year	For lamps made infrequently	
4.2.1	Marking – legibility	Running	All families with the same method of marking	200	32	2,5
4.2.1	Marking – durability	Periodic	All families with the same method of marking	50	20	2,5
4.2.2	Marking – additional information	Running	By group and type	200	32	2,5
4.3.1.1	Dimensional requirements for caps	Periodic	By group and type	32		2,5
4.3.1.2	Cap creepage distance	Design	All families using the same cap	Use Clause G.3		–
4.3.1.3	Cap key configuration	Periodic	By group and type	125		0,65
4.3.2.2 a)	Construction and assembly of cap/bulb (unused) – pull test	Periodic	All families using the same cap and attachment method	200	80	0,65
4.3.2.2 b)	Construction and assembly of cap/bulb (after heating test) – pull test	Design	All families using the same cap and attachment method	Use Clause G.2		
4.3.2.3 a)	Construction and assembly of cap/bulb (unused) – torque test	Periodic	All families using the same cap and attachment method	200	80	0,65
4.3.2.3 b)	Construction and assembly of cap/bulb (after heating test) – torque test	Design	All families using the same cap and attachment method	Use Clause G.2		
4.4.1	Accidentally live parts	All tests	By group and type	–		
4.4.2	Insulation resistance	Design	All families using the same cap and attachment method	Use Clause G.1		
4.4.3	Electric strength	Design	All families using the same cap and attachment method	Use Clause G.1		
4.5.2.1	Heat test	Design	All families using the same cap	Use Clause G.3		
4.5.2.2	Ball pressure test	Design	All families using the same cap	Use Clause G.3		
4.5.3.1	Glow-wire test	Design	All families using the same cap	Use Clause G.3		
4.6.1.2	Marking UV RG	Running	By group and type	200		32
4.6.1.3	UV	Design	By group and type	Use Clause G.3 ^b		
4.6.2.1	BLH assessment	Design	By family			
4.6.2.2	Marking BLH RG	Running	By group and type	200		32
5.1.	Pulse height HPS	Design	By group and type	Use Clause G.3		
5.2.2	Marking self-shielded	Running	By group and type	200	32	2,5
5.2.3	Containment	Design	By family	Use Annex I or Annex J as appropriate		

^a For the use of this term, see IEC 60410.

^b Under consideration.

Table K.2 provides the acceptance numbers related to AQL of 0,65 % as mentioned in Table K.1.

Table K.2 – Acceptance numbers AQL = 0,65 %

Number of lamps in manufacturer's records	Acceptance number	Number of lamps in manufacturer's records	Qualifying limit for acceptance as percentage of lamps in records %
80	1	2 001	1,03
81 to 125	2	2 100	1,02
126 to 200	3	2 400	1,00
201 to 260	4	2 750	0,98
261 to 315	5	3 150	0,96
316 to 400	6	3 550	0,94
401 to 500	7	4 100	0,92
501 to 600	8	4 800	0,90
601 to 700	9	5 700	0,88
701 to 800	10	6 800	0,86
801 to 920	11	8 200	0,84
921 to 1 040	12	10 000	0,82
1 041 to 1 140	13	13 000	0,80
1 141 to 1 250	14	17 500	0,78
1 251 to 1 360	15	24 500	0,76
1 361 to 1 460	16	39 000	0,74
1 461 to 1 570	17	69 000	0,72
1 571 to 1 680	18	145 000	0,70
1 681 to 1 780	19	305 000	0,68
1 781 to 1 890	20	1 000 000	0,67
1 891 to 2 000	21		

Table K.3 provides the acceptance numbers related to AQL of 2,5 % as mentioned in Table K.1.

Table K.3 – Acceptance numbers AQL = 2,5 %

Number of lamps in manufacturer's records	Acceptance number	Number of lamps in manufacturer's records	Qualifying limit for acceptance as percentage of lamps in records %
32	2	1 001	3,65
33 to 50	3	1 075	3,60
51 to 65	4	1 150	3,55
66 to 80	5	1 250	3,50
81 to 100	6	1 350	3,45
101 to 125	7	1 525	3,40
126 to 145	8	1 700	3,35
146 to 170	9	1 925	3,30
171 to 200	10	2 200	3,25
201 to 225	11	2 515	3,20
226 to 255	12	2 950	3,15
256 to 285	13	3 600	3,10
286 to 315	14	4 250	3,05
316 to 335	15	5 250	3,00
336 to 360	16	6 400	2,95
361 to 390	17	8 200	2,90
391 to 420	18	11 000	2,85
421 to 445	19	15 500	2,80
446 to 475	20	22 000	2,75
476 to 500	21	34 000	2,70
501 to 535	22	60 000	2,65
536 to 560	23	110 000	2,60
561 to 590	24	500 000	2,55
591 to 620	25	1 000 000	2,54
621 to 650	26		
651 to 680	27		
681 to 710	28		
711 to 745	29		
746 to 775	30		
776 to 805	31		
806 to 845	32		
846 to 880	33		
881 to 915	34		
916 to 955	35		
956 to 1 000	36		