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IS 10322-5-4 (1987): Luminaires, Part 5: Particular requirements, Section 4: Portable general purpose luminaires [ETD 24: Illumination Engineering and Luminaries]



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“Knowledge is such a treasure which cannot be stolen”

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Indian Standard
SPECIFICATION FOR LUMINAIRES
PART 5 PARTICULAR REQUIREMENTS

Section 4 Portable General Purpose Luminaires

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**AMENDMENT NO. 1 JANUARY 1995
TO
IS 10322 (Part 5/Sec 4) : 1987 SPECIFICATION FOR
LUMINAIRES**

PART 5 PARTICULAR REQUIREMENTS

Section 4 Portable General Purpose Luminaires

(*Page 3, clause 13.8*) — Substitute the following for the existing clause:

‘13.8 Photometric Tests — The photometric performance shall be determined by the test method given in IS 13383 (Part 1) : 1992 Photometry of luminaires — Method of measurement : Part 1 Luminaires for use in interior lighting.

The photometric requirements shall be as given in 12.’

(*Page 3, clause 13.8, Note*) — Delete.

(ETD 24)

Indian Standard

SPECIFICATION FOR LUMINAIRES

PART 5 PARTICULAR REQUIREMENTS

Section 4 Portable General Purpose Luminaires

0. FOREWORD

0.1 This Indian Standard (Part 5/Sec 4) was adopted by the Bureau of Indian Standards on 24 October 1987, after the draft finalized by the Illuminating Engineering and Luminaires Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard (Part 5/Sec 4) is one among the series of Indian standards which deal with luminaires. This series consists of the following parts:

- Part 1 General requirements,
- Part 2 Constructional requirements,
- Part 3 Screw and screwless terminals,
- Part 4 Methods of tests, and
- Part 5 Particular requirements.

0.3 In general, Parts 1 to 4 of this standard cover safety requirements for luminaires. The object of these parts is to provide a set of requirements and tests which are considered to be generally applicable to most types of luminaires and which can be called up as required by the detail specification under Part 5. Parts 1 to 4 are thus not to be regarded as a specification by itself for any type of luminaire and the provisions apply only to particular types of luminaires to the extent determined by the appropriate section of Part 5.

0.4 The sections of Part 5, in making reference to any other parts of the standard, specify the extent to which that section is applicable and the order in which the tests are to be performed; they also include additional requirements as necessary. The order in which the clauses in Part 1, 2, 3 and 4 are numbered, therefore, has no particular significance as the order in which their provisions apply has to be determined for each type of luminaire or group of luminaires by the appropriate section of Part 5. All sections of Part 5 are self-contained and therefore do not contain references to other sections of Part 5.

0.5 In the preparation of this standard, assistance has been derived from IEC Publication 598-2-4 (1979) 'Luminaires' Part 2 : Particular requirements Section 4—Portable general purpose luminaires', issued by the International Electrotechnical Commission (IEC).

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2 : 1960*. The number of significant places retained in the rounded off value should be the same as that of the specified values in this standard.

*Rules for rounding off numerical values (revised).

1. SCOPE

1.1 This standard (Part 5/Sec 4) specifies requirements for portable general purpose luminaires, other than handlamps, for use with tungsten filament, tubular fluorescent and other discharge lamps on supply voltages not exceeding 250 V. It is to be read in conjunction with Parts 1 to 4 of this standard to which reference is made.

2. DEFINITIONS

2.1 For the purpose of this standard, the definitions given in Part 1 of this standard and the following shall apply.

2.1.1 Portable Luminaire — A luminaire which, in normal use, can be moved from one place to another while connected to the supply.

3. GENERAL TEST REQUIREMENTS

3.1 The provisions of 3 of Part 1 of this standard shall apply. The tests shall be carried out in the order listed in 13.

4. CLASSIFICATION OF LUMINAIRES

4.1 Luminaires shall be classified in accordance with the provisions of 5 of Part 1 of this standard.

5. MARKING

5.1 The provisions of 6 of Part 1 of this standard shall apply.

5.1.1 The luminaire shall also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6. CONSTRUCTION

6.1 The provisions of Part 2 of this standard shall apply, together with the requirement of 6.2.

6.2 For portable luminaires, the insulation of flexible cables and cords shall be unlikely to be damaged when moving or adjusting the luminaire or when placing it on its support.

Compliance shall be checked by inspection.

6.3 Wiring shall be fixed by means of wire carriers, clips or similar devices of insulating material, at all places where it might otherwise rub against metal parts in the normal movement of the luminaire, if such rubbing will impart safety. Compliance shall be checked by inspection.

6.4 Portable luminaires shall have adequate stability. Compliance shall be checked by placing the luminaires in the most unfavourable position of normal use on a plane inclined at an angle of 6° to the horizontal, the surface of the plane being such that the luminaire does not slide.

Any instructions supplied by the manufacturer with the luminaire shall receive due consideration in respect of the stability test. The luminaire shall not overturn.

6.4.1 Luminaires which are fastened by clamps or similar devices are not subjected by this test.

7. CREEPAGE DISTANCES AND CLEARANCES

7.1 The provisions of 4 of Part 4 of this standard shall apply.

8. PROVISIONS FOR EARTHING

8.1 The provisions of 20 of Part 2 shall apply.

9. TERMINALS

9.1 The provisions of Part 3 of this standard shall apply.

10. EXTERNAL AND INTERNAL WIRING

10.1 The provisions of 19 of Part 2 of this standard shall apply except that the requirements whereby at least one part of the cord anchorage

shall be fixed to or be integral with the luminaire, does not apply to table lamps of glass or ceramic material.

For portable luminaires with a mass less than 1 kg and a rated current not exceeding 2.5 A and provided with a flexible cable of length not greater than 2 m, the cable shall have a nominal cross-sectional area of copper conductor not less than 0.5 mm². Otherwise, a conductor of cross-sectional area 0.75 mm² shall be used.

11. PROTECTION AGAINST ELECTRIC SHOCK

11.1 The provisions given in 21 of Part 2 of this standard shall apply.

12. PHOTOMETRIC REQUIREMENTS

12.1 Photometric data of luminaire shall consist of light distribution diagram in a plane perpendicular to lamp axis.

13. TESTS

13.1 Classification of Tests

13.1.1 Type Tests — The following shall constitute the type tests:

- a) Visual examination (see 13.2),
- b) Mechanical strength test (see 13.3),
- c) Endurance tests and thermal tests (see 13.4),
- d) Resistance to dust and moisture (see 13.5),
- e) Insulation resistance and electric strength (see 13.6),
- f) Resistance to heat, fire and tracking (see 13.7), and
- g) Photometric tests (see 13.8).

13.1.1.1 Number of samples shall be one which should be subjected to the type tests specified in 13.1.1, in the order specified therein.

13.1.1.2 Criteria for approval — The sample shall pass all the type tests for proving conformity with requirements of this standard. If one or more failure occurs, the testing authority may call for two more samples and subject them to those tests in which the failure occurred. No single failure shall be permitted in the repeat test.

13.1.2 Acceptance Tests — The following shall constitute acceptance tests:

- a) Visual examination (see 13.2),
- b) Resistance to dust and moisture (see 13.5),
- c) Insulation resistance and electric strength (see 13.6), and
- d) Photometric tests (see 13.8).

13.1.2.1 The number of samples for acceptance tests shall be as agreed to between the

purchaser and the supplier. However recommended plan of sampling is given in Appendix A.

13.1.3 Routine Tests — The following shall constitute the routine tests:

- a) Visual examination (*see* 13.2), and
- b) Insulation resistance and electric strength (*see* 13.6).

13.2 Visual Examination — The luminaires shall be examined visually for external finish, workmanship and electrical connections.

13.3 Mechanical Strength Test — The provisions of 5 of Part 4 of this standard shall apply.

13.4 Endurance Tests and Thermal Tests — The provisions of 6 of Part 4 of this standard shall apply.

13.4.1 Portable luminaires designed for standing on floor, and pendants, are supported during the test as in normal use.

Portable luminaires designed for standing on table, and adjustable luminaires, are tested on or above a dull black painted board similar to that described in Appendix D of Part 4 of this standard.

13.5 Resistance to Dust and Moisture — The provisions of 2 of Part 4 of this standard shall apply.

13.6 Insulation Resistance and Electric Strength Test — The provisions of 3 of Part 4 of this standard shall apply.

13.7 Resistance to Heat, Fire and Tracking — The provisions of 7 of Part 4 of this standard shall apply.

13.8 Photometric Tests — (*Under consideration*).

NOTE — A separate Indian standard on methods of photometry is under consideration.

APPENDIX A

(*Clause* 13.1.2.1)

SAMPLING PLAN FOR ACCEPTANCE TESTS

A-1. LOT

A-1.1 In any consignment, all the luminaires of same size, and manufactured from the same material under similar conditions of production shall be grouped together to constitute a lot.

A-2. SCALE OF SAMPLING

A-2.1 For judging the conformity of a lot to the requirements of the acceptance tests, sampling shall be done for each lot separately. For this purpose, the number of luminaires to be selected at random from each lot shall depend upon the size of the lot and shall be in accordance with Table 1.

TABLE 1 SAMPLE SIZE AND ACCEPTANCE NUMBER

(*Clauses* A-2.1, A-3.1 and A-3.2)

LOT SIZE	FOR VISUAL EXAMINATION, INSULATION RESISTANCE AND ELECTRIC STRENGTH		FOR OTHER ACCEPTANCE TESTS
	Sample Size	Acceptance Number	Sample Size
(1)	(2)	(3)	(4)
Up to 150	8	0	2
151 to 300	13	0	2
301 to 500	20	1	3
501 to 1 000	32	2	5
1 001 to 3 000	50	3	8*
3 001 and above	80	5	8

A-2.2 These luminaires shall be selected at random from the lot. In order to ensure the randomness of selection, procedures given in IS : 4905 - 1968* may be followed.

A-3. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-3.1 The luminaires selected in accordance with col 1 and 2 of Table 1 shall be subjected to visual examination, insulation resistance and electric strength test. A luminaire failing to satisfy any these acceptance tests shall be termed as defective. The lot shall be considered as conforming to the requirements of these acceptance tests if the number of defectives is less than or equal to the corresponding acceptance number given in col 3 of Table 1, otherwise not.

A-3.2 A lot which is found as conforming to the above requirements shall then be tested for the remaining acceptance tests, namely, resistance to dust and moisture and photometric tests. For this purpose, the sample size shall be selected in accordance with col 4 Table 1. The lot shall be considered as conforming to the requirements of these acceptance tests if there are no failures.

A-3.3 The lot shall be considered as conforming to the requirements of acceptance tests if A-3.1 and A-3.2 are satisfied.

*Methods for random sampling

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