

**AUTOMOTIVE INDUSTRY STANDARD**

**Performance Requirements  
for Cornering Lamps  
for Motor Vehicles**

**(Revision 1)**

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ON BEHALF OF  
AUTOMOTIVE INDUSTRY STANDARDS COMMITTEE

UNDER  
CENTRAL MOTOR VEHICLE RULES – TECHNICAL STANDING COMMITTEE

SET-UP BY  
MINISTRY OF ROAD TRANSPORT & HIGHWAYS  
(DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS)  
GOVERNMENT OF INDIA

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Status chart of the standard to be used by the purchaser for updating the record

| Sr. No.                  | Corrigenda. | Amendment | Revision | Date | Remark | Misc. |
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| <b>General remarks :</b> |             |           |          |      |        |       |

## INTRODUCTION

0.1 The Government of India felt the need for a permanent agency to expedite the publication of standards and development of test facilities in parallel when the work on the preparation of the standards is going on, as the development of improved safety critical parts can be undertaken only after the publication of the standard and commissioning of test facilities. To this end, the erstwhile Ministry of Surface Transport (MOST) has constituted a permanent Automotive Industry Standards Committee (AISC) vide order No. RT-11028/11/97-MVL dated September 15, 1997. The standards prepared by AISC will be approved by the permanent CMVR Technical Standing Committee (CTSC). After approval, the Automotive Research Association of India, (ARAI), Pune, being the Secretariat of the AIS Committee, has published this standard. For better dissemination of this information ARAI may publish this document on their Web site.

0.2 Accordingly AIS-012 covering performance requirements of lighting and light-signalling devices for motor vehicles having more than three wheels, trailers and semi-trailers has been published in 2004 and implemented thereafter in 2005.

With technological advancement in lighting and light-signalling devices and updation in ECE regulations, AIS-012 was taken up for revision and now is prepared in ten parts. This part covers performance requirements for cornering lamps for motor vehicles.

0.3 While preparing this standard considerable assistance has been derived from following ECE regulation.

|  |   |
|--|---|
| ECE R 119 Amd.4<br>Supplement 4 to the original<br>version of the standard:<br>Date of entry into force:<br>22 July 2009 | Uniform Provisions Concerning the Approval<br>of Cornering Lamps for Power-driven<br>Vehicles |
|--|---|

0.4 The following standards contain provisions, which through reference in this text constitute provisions of the standard.

|                                   |  |
|-----------------------------------|--|
| AIS-053:2005                      | Automotive Vehicles - Types - Terminology  |
| AIS-008 (Rev.1):<br>2010          | Installation Requirements of Lighting and<br>Light-signalling Devices for Motor Vehicle having more<br>than Three Wheels, Trailer and Semi-trailer excluding<br>Agricultural Tractor and Special Purpose Vehicle |
| AIS-034 (Part 1)<br>(Rev. 1):2010 | Provisions concerning the Approval of Filament Lamps<br>for use in Approved Lamp Units on Power Driven<br>Vehicles and their Trailers  |
| AIS-010 (Part 5)<br>(Rev. 1):2010 | Requirements of Chromaticity Co-ordinates of Colour<br>of Light Emitted from Lighting and Light-signalling<br>Devices  |

|              |  |
|--------------|--|
| AIS-037:2004 | Procedure for Type Approval and Establishing Conformity of Production for Safety Critical Components |
|--------------|--|

- 0.5 The AISC panel and Automotive Industry Standards Committee (AISC) responsible for preparation of this standard are given in Annex G and Annex H respectively.

**Performance Requirements for Cornering Lamps  
for Motor Vehicles**

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## Performance Requirements for Cornering Lamps for Motor Vehicles

### 0. SCOPE

This standard applies to cornering lamps for vehicles of category M, N and A.<sup>1/</sup>

**Note:** The permission to use cornering Lamps covered by this standard are governed by requirements specified by the standard for installation of requirements of that category of vehicles.

### 1. DEFINITIONS

For the purpose of this standard,

1.1. The definitions given in AIS-008(Rev.1) and its amendments in force at the time of application for type approval shall apply to this standard.

1.2. "**Cornering lamp**" means a lamp used to provide supplementary illumination of that part of the road which is located near the forward corner of the vehicle at the side towards which the vehicle is going to turn."

1.3. "**Cornering lamps of different types**" means lamps which differ in such essential respects as:

- the trade name or mark;
- the characteristics of the optical system (level of intensity, light distribution angles, category of filament lamp, light source module, etc.);

A change of the colour of the filament lamp or the colour of any filter does not constitute a change of type.

1.3.1. Reserved

1.3.2. Reserved

1.3.3. the inclusion of components capable of altering the optical effects by reflection, refraction or absorption; and

1.3.4. the category of filament lamp.

1.4. The definitions of the colour of the light emitted given in AIS-010(Part 5) (Rev. 1) and its amendments for type approval shall apply to this standard

1.5. References made in this standard for filament lamps shall be referred to AIS-034 (Part 1)(Rev. 1) and its amendments at the time of application for type approval

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<sup>1/</sup> As defined in AIS-053: Automotive Vehicles - Types - Terminology

## 2. APPLICATION FOR APPROVAL

- 2.1. The application for approval shall be submitted by the applicant as given in Annex A
- 2.2 For each type of cornering lamp, the application shall be accompanied by:
  - 2.2.1. drawings, in triplicate, in sufficient detail to permit identification of the type of the cornering lamp and showing in what geometrical position the cornering lamp is to be mounted on the vehicle; the axis of observation to be taken as the axis of reference in the tests (horizontal angle  $H = 0^\circ$ , vertical angle  $V = 0^\circ$ ); and the point to be taken as the centre of reference in the said tests
  - 2.2.2. a brief technical description stating, in particular, with the exception of lamps with non-replaceable light sources:
    - (a) the category or categories of filament lamp(s) prescribed; this filament lamp category shall be one of those contained in AIS-034 (Part 1)(Rev. 1) and its amendments in force at the time of application for type approval; and/or
    - (b) the light source module specific identification code."
  - 2.2.3. two samples. If the devices are not identical but are symmetrical and suitable for mounting one on the left and one on the right side of the vehicle, the two samples submitted may be identical and be suitable for mounting only on the right or only on the left side of the vehicle.

## 3. MARKINGS

The samples of a type of cornering lamp submitted for approval shall:

- 3.1. bear the trade name or mark of the applicant; this marking shall be clearly legible and be indelible;
- 3.2. with the exception of lamps with non-replaceable light sources, bear a clearly legible and indelible marking indicating:
  - the category or categories of filament lamp(s) prescribed; and/or
  - the light source module specific identification code.
- 3.3. Reserved.
- 3.4. In the case of lamps with an electronic light source control gear and/or non-replaceable light sources and/or light source module(s), bear the marking of the rated voltage or range of voltage and rated maximum wattage
- 3.5. in the case of lamps with light source module(s), the light source module(s) shall bear:
  - 3.5.1. the trade name or mark of the applicant; this marking shall be clearly legible and indelible;

- 3.5.2. the specific identification code of the module; this marking shall be clearly legible and indelible. This specific identification code shall comprise the starting letters "MD" for "MODULE"

The approval marking does not have to be the same as the one on the lamp in which the module is used, but both markings shall be from the same applicant.

- 3.5.3. the marking of the rated voltage and rated wattage.
- 3.6. Lamps operating at voltages other than the nominal rated voltages of 6 V, 12 V or 24 V respectively, by the application of an electronic light source control gear being not part of the lamp, shall also bear a marking denoting the rated secondary design voltage.
- 3.7. An electronic light source control gear being part of the lamp but not included into the lamp body shall bear the name of the manufacturer and its identification number.
- 3.8. On the prototype for type approval, the markings may be provided by suitable temporary methods and need not necessary be obtained from the tools used for series production.

#### **4. APPROVAL**

- 4.1. If the two samples of a type of cornering lamp meet the requirements of this standard, approval shall be granted.
- 4.2. to 4.7. Reserved clauses

#### **5. GENERAL SPECIFICATIONS**

- 5.1. Each sample shall conform to the specifications set forth in the paragraphs below.
- 5.2. Cornering lamps shall be so designed and constructed that in normal use, despite the vibration to which they may then be subjected, they continue to function satisfactorily and retain the characteristics prescribed by this standard.
- 5.3. In the case of light source modules, it shall be checked that:
- 5.3.1. The design of the light source module(s) shall be such as:
- (a) that each light source module shall be fitted in no other position than the designated and correct one and shall be removed with the use of tool(s);
  - (b) If there are more than one light source module used in the housing for a device, light source modules having different characteristics shall not be able to be interchanged within the same lamp housing.



- 5.3.2. The light source module(s) shall be tamperproof."
- 5.4. In the case of replaceable filament lamp(s):
  - 5.4.1. Any category or categories of filament lamp(s) approved according to AIS-034 (Part 1) (Rev. 1) and its amendments in force may be used, provided that no restriction on the use is made in AIS-034 (Part 1) (Rev. 1) and its amendments in force at the time of application for type approval.
  - 5.4.2. The design of the device shall be such that the filament lamp shall be able to be fixed in no other position but the correct one.
  - 5.4.3. The filament lamp holder shall conform to the characteristics given in IEC Publication 60061. The holder data sheet relevant to the category of filament lamp used, applies.

**6. INTENSITY OF LIGHT EMITTED**

- 6.1. The intensity of light emitted by each of two samples shall be not less than the minimum intensity and not greater than the maximum intensity specified in paragraphs 6.2. and 6.3. The intensity shall be measured in relation to the axis of reference in the directions shown below (expressed in degrees of angle with the axis of reference). Test points are given for a lamp mounted on the left side of the vehicle, the L designations become R designations for a lamp mounted on the right side of the vehicle.
- 6.2. For the left-hand device, the minimum intensity of the light at the specified measuring points shall be as follows:
  - (1) 2.5D – 30L: 240 cd
  - (2) 2.5D – 45L: 400 cd
  - (3) 2.5D – 60L: 240 cd

The same values apply symmetrically for a right-hand device. (Shown in Annex C)
- 6.3. The intensity of the light emitted in all directions shall not exceed 300 cd above the horizontal plane, 600 cd on the 0.57D-L and R line and 10,000 cd below this line.
- 6.4. In the areas of 10 degrees above and below the horizontal and between 30 and 60 degrees outward the light intensity shall be at least 1.0 cd.
- 6.5. In the case of a single lamp containing more than one light source, the lamp shall comply with the minimum intensity required when any one light source has failed and when all light sources are illuminated the maximum intensities shall not be exceeded.

**7. TEST PROCEDURE**

- 7.1. All measurements shall be carried out with uncoloured standard filament lamps of the types prescribed for the device, adjusted to produce the reference luminous flux prescribed for those types of filament lamps, when not supplied by an electronic light source control gear.
- 7.2. All measurements on lamps equipped with non-replaceable light sources (filament lamps and other) shall be made at 6.75 V, 13.5 V or 28.0 V respectively, when not supplied by an electronic light source control gear.
- 7.3. In the case of a system that uses an electronic light source control gear being part of the lamp <sup>1/</sup>, all measurements, photometric and colorimetric, shall be made applying at the input terminals of the lamp a voltage of 6.75 V, 13.5 V or 28.0 V respectively.
- 7.4. In the case of a system that uses an electronic light source control gear not being part of the lamp the voltage declared by the manufacturer shall be applied to the input terminals of the lamp. The test laboratory shall require from the applicant the light source control gear needed to supply the light source and the applicable functions.

The voltage to be applied to the lamp shall be noted in the Application form for Approval in Annex A of this standard.

- 7.5. For any lamp except those equipped with filament lamps, the luminous intensities, measured after one minute and after 30 minutes of operation, shall comply with the minimum and maximum requirements. The luminous intensity distribution after one minute of operation may be calculated from the luminous intensity distribution after 30 minutes of operation by applying at each test point the ratio of luminous intensities measured at HV after one minute and after 30 minutes of operation.

**8. COLOUR OF LIGHT EMITTED**

- 8.1. The colour of the light emitted inside the field of the light distribution grid defined in paragraph C 2. of Annex C shall be white and within the limits of co-ordinates prescribed in paragraph 2 of AIS-010 (Part 5) (Rev. 1).
- 8.2. It shall be measured under conditions as prescribed in paragraph 7 of this standard. Outside this field, no sharp variations of colour shall be observed.

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<sup>1/</sup> For the purpose of this standard "being part of the lamp" means to be physically included in the lamp body or to be external, separated or not, from the lamp body but supplied by the lamp manufacturer as part of the lamp system.

## 9. CONFORMITY OF PRODUCTION

The conformity of production procedures shall comply with those set out in the AIS-037 with the following requirements

9.1. Every device bearing an approval mark as prescribed under this standard shall conform to the type approved and shall comply with the requirements of this standard. However, in the case of a device picked at random from series production, the requirements as to the respectively, minimum and maximum intensities of the light emitted (measured with a standard filament lamp as referred to in 7. above) shall be at least 80 per cent of the minimum values specified and not exceed 120 per cent of the maximum values allowed. Lamps approved under this standard shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 6. and 8. above.

9.2 The conformity of production procedures shall comply with those set out in the AIS-037 with the following requirements:

9.2.1 During the verification as per 9.2, if tests are required, the following tests shall be carried out:

9.2.1.1 Intensity of light emitted (See 6).

9.2.1.2 Colour of light emitted (See 8).

9.3 Devices with apparent defects are disregarded.

9.4 The reference mark is disregarded.

9.5 The normal frequency of these verifications shall be once every two years.

## 10. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

10.1 Penalties for non-conformity of production shall be as prescribed in AIS-037.

10.2. Reserved.

11. **Reserved**

12. **Reserved**

**13. MODIFICATIONS OF THE TYPE OF CORNERING LAMP AND EXTENSION OF APPROVAL**

- 13.1. Every modification pertaining to the information, even if the changes are not technical in nature shall be intimated by the manufacturer to the testing agency.

If the changes are in parameters not related to the provisions, no further action need be taken.

If the changes are in parameters related to the provisions, the testing agency, which has issued the certificate of compliance, shall then consider, whether,

- 13.1.1. the device with the changed specifications still complies with provisions, or

- 13.1.2. Any further verification is required to establish compliance.

- 13.2. For considering whether testing is required or not, guidelines given in 13.5 (Criteria for Extension of Approval) shall be used.

- 13.3. In case of 13.1.2, tests for only those parameters which are affected by the modifications need be carried out

- 13.4. In case of fulfilment of criterion of 13.1.1 or after results of further verification as per 13.1.2 are satisfactory, the approval of compliance shall be extended for the changes carried out.

**13.5 Criteria for extension of approval**

The criteria shall be as agreed between the testing agency and applicant.

**14. TRANSITIONAL PROVISIONS**

- 14.1. At the request of the applicant, type approvals for compliance to AIS-012(Part 3) (Rev.1):2011, shall be granted by test agencies from 22<sup>nd</sup> February 2011 (date of adoption of this standard in CMVR-TSC).

**15 ESTABLISHING COMPLIANCE OF “E”/“e” APPROVED CORNERING LAMPS TO THIS STANDARD**

- 15.1. As an exception to 7.4 of AIS-037, (or related administrative decisions) for certifying compliance of “E”/“e” approved cornering lamps to this standard, the test for the following shall be carried out by testing agency

- 15.2. Photometric requirements measured with a standard filament lamp as referred to in 6 above shall be at least 80 per cent of the minimum values and shall not exceed 120 per cent of the maximum values specified.

- 15.3. Colorimetric requirements shall be within the limits specified.

**16 AMENDMENTS TO ECE REGULATIONS AFTER THE LEVEL DESCRIBED IN 0.3 OF INTRODUCTION**

16.1 Supplements

In case of changes in ECE regulation, which are issued as supplements (Supplements do not affect the earlier type approvals) at the request of applicant, approval of compliance to this standard shall be issued taking into account the changes arising out of such supplement(s) to ECE regulation with approval from Chairman AISC.

This shall be incorporated in the test report.

Such changes will be considered for inclusion in this standard at the time of its next amendment /revision.

16.2 Series of amendments

Changes in ECE regulation, which are issued as series of amendments (series of amendments may affect the earlier type approvals) will not be considered for issuing approval to this standard.

However, Chairman, AISC may, on a case to case basis, permit to accept latest series of amendments.

This shall be incorporated in the test report.

Such changes will be considered for inclusion in this standard at the time of its next revision.

**ANNEX A**

(See 2.1)

**APPLICATION FOR APPROVAL**

**Technical Information to be submitted by the Applicant  
at the time of Approval**

- A1. Manufacturer's name and address
- A2. Telephone No
- A3. FAX. No.
- A4. E mail address
- A5. Contact person
- A6. Plant/(s) of manufacture.
- A7. The intended function(s) of the device.

**ANNEX B**  
(Reserved)

ANNEX C

(See 6.2)

PHOTOMETRIC MEASUREMENTS

C 1. MEASUREMENT METHODS

C 1.1. When photometric measurements are taken, stray reflections shall be avoided by appropriate masking.

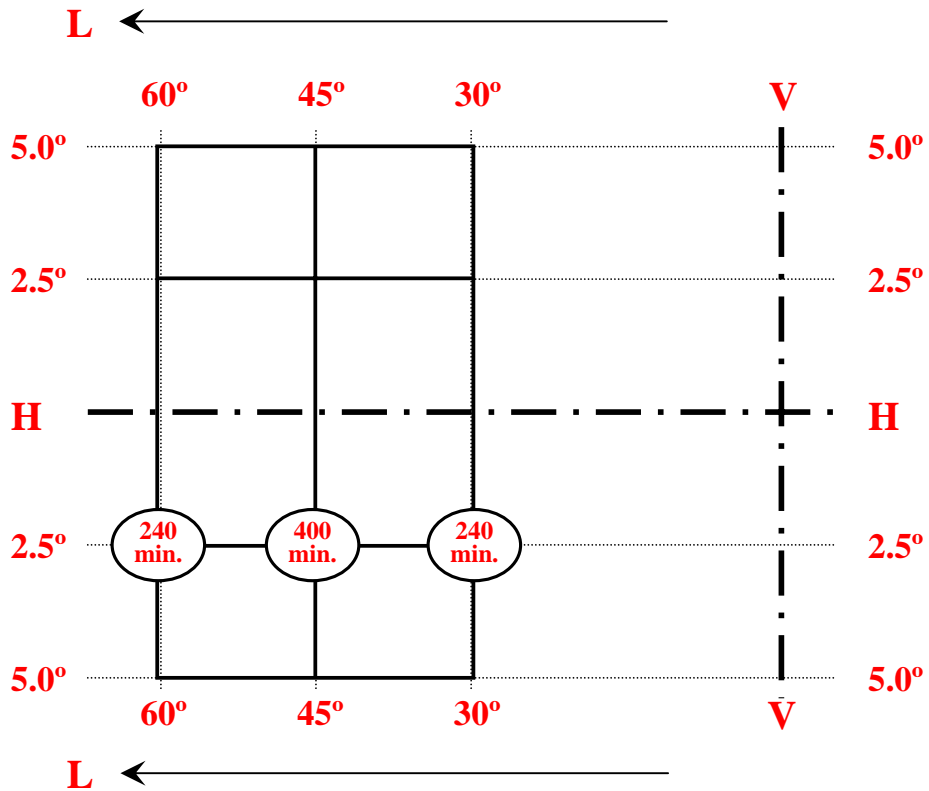
C 1.2. In the event that the results of measurements are challenged, measurements shall be taken in such a way as to meet the following requirements:

C 1.2.1. the distance of measurement shall be such that the law of the inverse of the square of the distance is applicable;

C 1.2.2. the measuring equipment shall be such that the angle subtended by the receiver from the reference centre of the light is between 10' and 1°;

C 1.2.3. the intensity requirement for a particular direction of observation shall be satisfied if the required intensity is obtained in a direction deviating by not more than one quarter of a degree from the direction of observation.

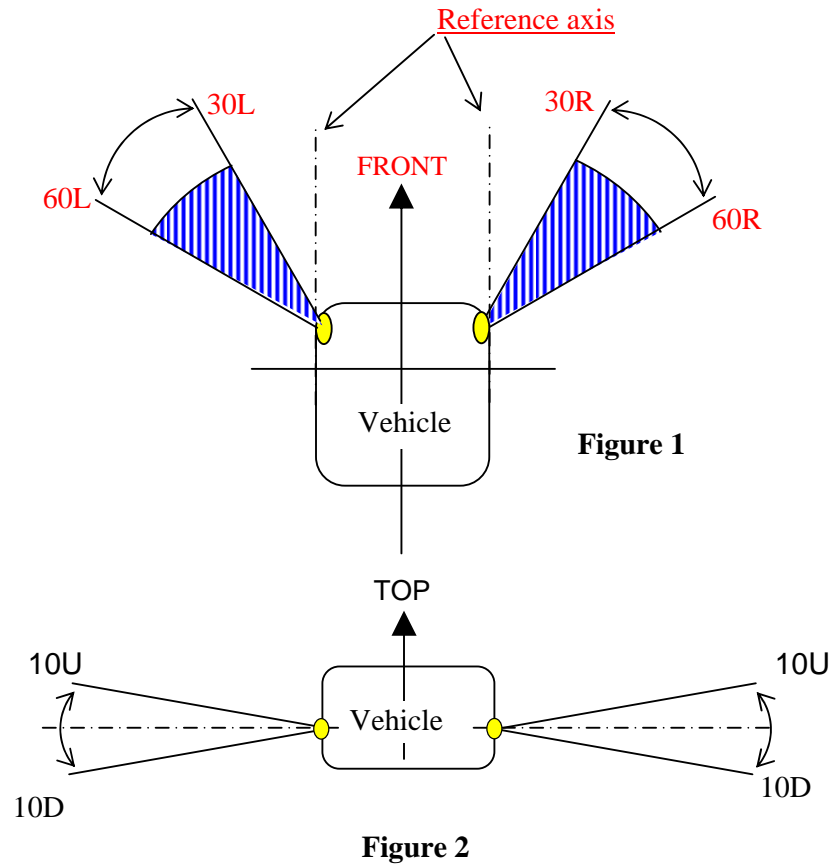
C 2. MEASURING POINTS EXPRESSED IN DEGREES OF ANGLE WITH THE AXIS OF REFERENCE



○ = Minimum intensity in cd  
 Left-side lamp (L angle should be substituted for R angle for Right-side lamp)



C 2.1. Field of geometric visibility



C 2.1.1. The directions  $H = 0^\circ$  and  $V = 0^\circ$  correspond to the axis of reference. On the vehicle they are horizontal, parallel to the median longitudinal plane of the vehicle and oriented in the required direction of visibility. They pass through the centre of reference. The values shown in the table give, for the various directions of measurement, the minimum intensities in cd.

**C 3. PHOTOMETRIC MEASUREMENT OF LAMPS EQUIPPED WITH SEVERAL LIGHT SOURCES**

The photometric performance shall be checked:

C 3.1. For non-replaceable light sources (filament lamps and other):

With the light sources present in the lamp, in accordance with paragraph 7.2 of this standard.

C 3.2. For replaceable filament lamps:

When equipped with filament lamps at 6.75 V, 13.5 V or 28.0 V the luminous intensity values produced shall be corrected. The correction factor is the ratio between the reference luminous flux and the mean value of the luminous flux found at the voltage applied (6.75 V, 13.5 V or 28.0 V). The actual luminous fluxes of each filament lamp used shall not deviate more than  $\pm 5$  per cent from the mean value. Alternatively a standard filament lamp may be used in turn, in each of the individual positions, operated at its reference flux, the individual measurements in each position being added together.

C 3.3. For any signalling lamp except those equipped with filament lamp(s), the luminous intensities, measured after one minute and after 30 minutes of operation, shall comply with the minimum and maximum requirements. The luminous intensity distribution after one minute of operation may be calculated from the luminous intensity distribution after 30 minutes of operation by applying at each test point the ratio of luminous intensities measured at HV after one minute and after 30 minutes of operation.

**ANNEX D**  
(Reserved)

**ANNEX E**

(See 9.)

**MINIMUM REQUIREMENTS FOR CONFORMITY OF  
PRODUCTION CONTROL PROCEDURES**

**E 1. GENERAL**

- E 1.1. The conformity requirements shall be considered satisfied from a mechanical and geometric standpoint, if the differences do not exceed inevitable manufacturing deviations within the requirements of this standard.
- E 1.2. With respect to photometric performances, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random and equipped with a standard filament lamp, or when the lamps are equipped with non-replaceable light sources (filament lamps or other), and when all measurements are made at 6.75 V, 13.5 V or 28.0 V respectively:
- E 1.2.1. No measured value deviates unfavourably by more than 20 per cent from the values prescribed in this standard.
- E 1.2.2. If, in the case of a lamp equipped with a replaceable light source and if results of the test described above do not meet the requirements, tests on lamps shall be repeated using another standard filament lamp.
- E 1.3. The chromaticity coordinates shall be complied with when the lamp is equipped with a standard filament lamp, or for lamps equipped with non-replaceable light sources (filament lamps or other), when the colorimetric characteristics are verified with the light source present in the lamp.

**E 2. MINIMUM REQUIREMENTS FOR VERIFICATION OF  
CONFORMITY BY THE MANUFACTURER**

For each type of lamp the holder of the approval mark shall carry out at least the following tests, at appropriate intervals. The tests shall be carried out in accordance with the provisions of this standard.

If any sampling shows non-conformity with regard to the type of test concerned, further samples shall be taken and tested. The manufacturer shall take steps to ensure the conformity of the production concerned.

**E 2.1. Nature of tests**

Tests of conformity in this standard shall cover the photometric and colorimetric characteristics.

**E 2.2. Methods used in tests**

- E 2.2.1. Tests shall generally be carried out in accordance with the methods set out in this standard.

- E 2.2.2. In any test of conformity carried out by the manufacturer, equivalent methods may be used with the consent of the testing agency responsible for approval tests. The manufacturer is responsible for proving that the applied methods are equivalent to those laid down in this standard.
- E 2.2.3. The application of paragraphs E 2.2.1 and E 2.2.2. requires regular calibration of test apparatus and its correlation with measurements made by a testing agency.
- E 2.2.4. In all cases the reference methods shall be those of this standard, particularly for the purpose of administrative verification and sampling.

**E 2.3. Nature of sampling**

Samples of lamps shall be selected at random from the production of a uniform batch. A uniform batch means a set of lamps of the same type, defined according to the production methods of the manufacturer.

The assessment shall in general cover series production from individual factories. However, a manufacturer may group together records concerning the same type from several factories, provided these operate under the same quality system and quality management.

**E 2.4. Measured and recorded photometric characteristics**

The sampled lamp shall be subjected to photometric measurements for the minimum values at the points listed in Annex C and the required chromaticity coordinates.

**E 2.5. Criteria governing acceptability**

The manufacturer is responsible for carrying out a statistical study of the test results and for defining, in agreement with the testing agency, criteria governing the acceptability of his products in order to meet the specifications laid down for verification of conformity of products in paragraph 9.1. of this standard.

The criteria governing the acceptability shall be such that, with a confidence level of 95 per cent, the minimum probability of passing a spot check in accordance with Annex F (first sampling) would be 0.95.

**ANNEX F**

(See E 2.5)

**MINIMUM REQUIREMENTS FOR SAMPLING BY  
A TESTING AGENCY**

**F 1. GENERAL**

- F 1.1. The conformity requirements shall be considered satisfied from a mechanical and a geometric standpoint, in accordance with the requirements of this standard, if any, if the differences do not exceed inevitable manufacturing deviations.
- F 1.2. With respect to photometric performance, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random and equipped with a standard filament lamp, or when the lamps are equipped with non-replaceable light sources (filament lamps or other), and when all measurements are made at 6.75 V, 13.5 V or 28.0 V respectively:
- F 1.2.1. no measured value deviates unfavourably by more than 20 per cent from the values prescribed in this standard.
- F 1.2.2. If, in the case of a lamp equipped with a replaceable light source and if results of the test described above do not meet the requirements, tests on lamps shall be repeated using another standard filament lamp.
- F 1.2.3. Lamps with apparent defects are disregarded.
- F 1.3. The chromaticity coordinates shall be complied with when the lamp is equipped with a standard filament lamp, or for lamps equipped with non-replaceable light sources (filament lamps or other), when the colorimetric characteristics are verified with the light source present in the lamp.

**F 2. FIRST SAMPLING**

In the first sampling four lamps are selected at random. The first sample of two is marked A, the second sample of two is marked B.

- F 2.1. The conformity is not contested
- F 2.1.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced lamps shall not be contested if the deviation of the measured values of the lamps in the unfavourable directions are:

F 2.1.1.1. sample A

|     |                        |             |
|-----|------------------------|-------------|
| A1: | one lamp               | 0 per cent  |
|     | one lamp not more than | 20 per cent |

|     |                      |             |
|-----|----------------------|-------------|
| A2: | both lamps more than | 0 per cent  |
|     | but not more than    | 20 per cent |
|     | go to sample B       |             |

F 2.1.1.2. sample B

|     |            |            |
|-----|------------|------------|
| B1: | both lamps | 0 per cent |
|-----|------------|------------|

F 2.1.2. or, if the conditions of paragraph F 1.2.2. for sample A are fulfilled.

**F 2.2. The conformity is contested**

F 2.2.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced lamps shall be contested and the manufacturer requested to make his production meet the requirements (alignment) if the deviations of the measured values of the lamps are:

F 2.2.1.1. sample A

|     |                        |             |
|-----|------------------------|-------------|
| A3: | one lamp not more than | 20 per cent |
|     | one lamp more than     | 20 per cent |
|     | but not more than      | 30 per cent |

F 2.2.1.2. sample B

|     |                        |             |
|-----|------------------------|-------------|
| B2: | in the case of A2      |             |
|     | one lamp more than     | 0 per cent  |
|     | but not more than      | 20 per cent |
|     | one lamp not more than | 20 per cent |

|     |                    |             |
|-----|--------------------|-------------|
| B3: | in the case of A2  |             |
|     | one lamp           | 0 per cent  |
|     | one lamp more than | 20 per cent |
|     | but not more than  | 30 per cent |

F 2.2.2. Or, if the conditions of paragraph F 1.2.2. for sample A are not fulfilled.

**F 2.3. Non conformity established**

Conformity shall be contested and paragraph 10 applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the lamps are:

**F 2.3.1. sample A**

|     |                        |             |
|-----|------------------------|-------------|
| A4: | one lamp not more than | 20 per cent |
|     | one lamp more than     | 30 per cent |
| A5: | both lamps more than   | 20 per cent |

**F 2.3.2. sample B**

|     |                      |             |
|-----|----------------------|-------------|
| B4: | in the case of A2    |             |
|     | one lamp more than   | 0 per cent  |
|     | but not more than    | 20 per cent |
|     | one lamp more than   | 20 per cent |
| B5: | in the case of A2    |             |
|     | both lamps more than | 20 per cent |
| B6: | in the case of A2    |             |
|     | one lamp             | 0 per cent  |
|     | one lamp more than   | 30 per cent |

F 2.3.3. Or, if the conditions of paragraph F 1.2.2. for samples A and B are not fulfilled.

**F 3. REPEATED SAMPLING**

In the cases of A3, B2, B3 a repeated sampling, third sample C of two lamps and fourth sample D of two lamps, selected from stock manufactured after alignment, is necessary within two months' time after the notification.

**F 3.1. The conformity is not contested**

F 3.1.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced lamps shall not be contested if the deviations of the measured values of the lamps are:

**F 3.1.1.1. sample C**

|     |                        |             |
|-----|------------------------|-------------|
| C1: | one lamp               | 0 per cent  |
|     | one lamp not more than | 20 per cent |



C2: both lamps more than 0 per cent  
but not more than 20 per cent  
go to sample D

F 3.1.1.2. sample D

D1: in the case of C2  
both lamps 0 per cent

F 3.1.2. Or, if the conditions of paragraph F 1.2.2. for sample C are fulfilled.

**F 3.2. The conformity is contested**

F 3.2.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced lamps shall be contested and the manufacturer requested to make his production meet the requirements (alignment) if the deviations of the measured values of the lamps are:

F 3.2.1.1. sample D

D2: in the case of C2  
one lamp more than 0 per cent  
but not more than 20 per cent  
one lamp not more than 20 per cent

F 3.2.1.2. Or, if the conditions of paragraph F 1.2.2. for sample C are not fulfilled.

**F 3.3. Non conformity established**

Conformity shall be contested and paragraph 10 applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the lamps are:

F 3.3.1. sample C

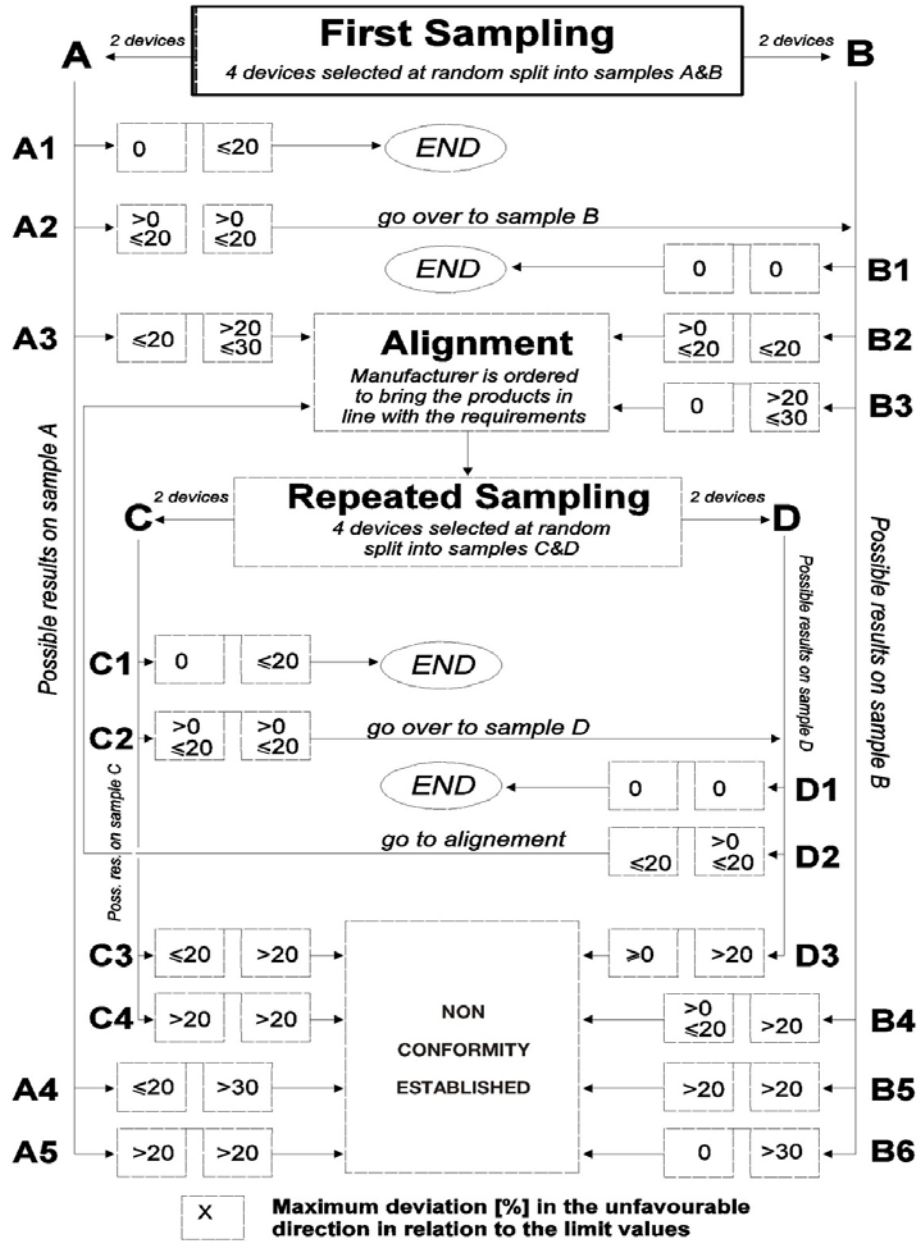
C3: one lamp not more than 20 per cent  
one lamp more than 20 per cent  
C4: both lamps more than 20 per cent

F 3.3.2. sample D

D3: in the case of C2  
one lamp 0 or more than 0 per cent  
one lamp more than 20 per cent

F 3.3.3. or, if the conditions of paragraph F 1.2.2 for samples C and D are not fulfilled.

Figure 1



**ANNEX G**  
(See introduction)

**COMPOSITION OF AISC PANEL ON  
LIGHTING AND LIGHT SIGNALLING DEVICES\***

| <b>Convener</b>       |  |
|-----------------------|--|
| Mr. R. M. Kanitkar    | Force Motors Ltd., (SIAM)  |
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| Mr. B. V. Shamsundara | The Automotive Research Association of India (ARAI)                                    |
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| Mr. V. D. Chavan      | Central Institute of Road Transport (CIRT)   |
| Dr. Madhusudan Joshi  | International Centre for Automotive Technology (ICAT)                                  |
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| Dr. N. Karuppaiah     | National Automotive Testing and R&D Infrastructure Project (NATRIP)                    |
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| Mr. G. K. Binani      | Society of Indian Automobile Manufacturers (SIAM)<br>(Tata Motors Ltd)                 |
| Mr. P. K. Banerjee    | Society of Indian Automobile Manufacturers (SIAM)<br>(Tata Motors Ltd)                 |
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| Mr. Nagendra H. V.    | Society of Indian Automobile Manufacturers (SIAM)<br>(Toyota Kirloskar Motor Pvt. Ltd) |
| Mr. Prakash Vemali    | Society of Indian Automobile Manufacturers (SIAM)<br>(Mercedes Benz India Ltd. )       |
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|                           |  |
|---------------------------|--|
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| Mr. T. V. Singh           | Bureau of Indian Standards (BIS)                               |
| Mr. Rajiv Agarwal         | All India Auto & Miniature Bulbs & Component Mfrs. Association |
| Mr. C. K. Choudhari       | All India Auto & Miniature Bulbs & Component Mfrs. Association |

\* At the time of approval of this Automotive Industry Standard (AIS)

**ANNEX H**  
(See introduction)

**COMMITTEE COMPOSITION\***  
**Automotive Industry Standards Committee**

|   |  |
|---|--|
| <b>Chairman</b>                             |  |
| Shri Shrikant R. Marathe                    | Director<br>The Automotive Research Association of India, Pune   |
| <b>Members</b>                              | <b>Representing</b>  |
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| Representative from                         | Ministry of Heavy Industries & Public Enterprises<br>(Department of Heavy Industry), New Delhi               |
| Shri S. M. Ahuja                            | Office of the Development Commissioner, MSME,<br>Ministry of Micro, Small & Medium Enterprises,<br>New Delhi |
| Shri T. V. Singh                            | Bureau of Indian Standards, New Delhi  |
| Director<br>Shri D. P. Saste<br>(Alternate) | Central Institute of Road Transport, Pune  |
| Dr. M. O. Garg                              | Indian Institute of Petroleum, Dehra Dun   |
| Shri C. P. Ramnarayanan                     | Vehicles Research & Development Establishment,<br>Ahmednagar   |
| Representatives from                        | Society of Indian Automobile Manufacturers   |
| Shri T.C. Gopalan                           | Tractor Manufacturers Association, New Delhi   |
| Shri K.N.D.<br>Nambudiripad                 | Automotive Components Manufacturers Association of<br>India, New Delhi                                       |

Member Secretary  
Mrs. Rashmi Urdhwareshe  
Sr. Deputy Director  
The Automotive Research Association of India, Pune

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